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Paper TRADE JOURNAL

REG. U. S. PAT. OFF.

VOLUME 127, No. 2 JULY 8, 1948

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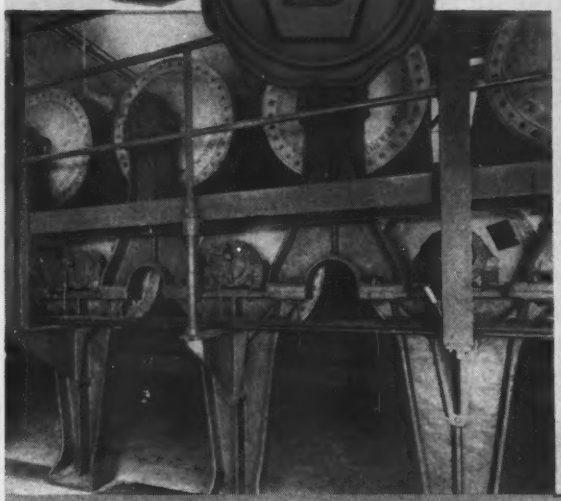

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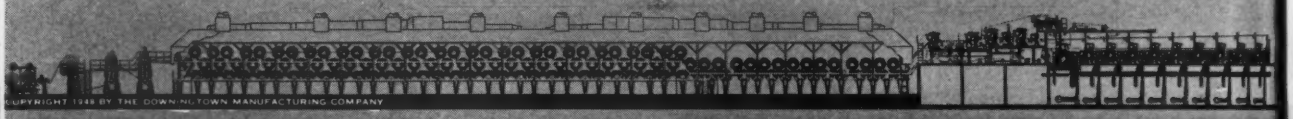

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IN THIS ISSUE

JULY 8, 1948

'Pitch' Keynotes Green Bay Meeting of Superintendents 9
How Draft Law Applies To Paper Industry ... 10
Finn's Pulpwood Output Under Pre-Season Estimates 11
Hammermill 50 Years Old 11
Cash For Norway Pine Cones Offered 4-H Clubbers 12
Patent Rules Overhaul Planned 14
What People Want To Know About Your Company 16
Bird & Son Mark 153rd Anniversary 18
ASTM Meeting Features Apparatus Exhibit .. 22
TRENDS 24
IMPORTS 26
PRICES 28
MARKETS 30
FINANCE 32
OBITUARY 33
PRODUCTION RATIO REPORT 34
INDUSTRIAL DEVELOPMENT 37
Ownership and Availability of Lake States Pulpwood 37
Askania Thin Stock Consistency Regulation .. 40
Paper Mill Applications for Flexible Couplings 43
TAPPI SECTION 47
Tailored Adhesives for Corrugated Board ... 47
A Review of By-products of Sulphite Pulping 51
CLASSIFIED ADVERTISING 60

INDEX TO ADVERTISEMENTS ON PAGE 74

Volume 127 **Number 2**

Paper TRADE JOURNAL

REG. U. S. PAT. OFF.

Executive and Editorial Offices: 15 W. 47th St., New York 19, New York
Published Every Thursday by Lockwood Trade Journal Co., Inc.

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OXFORD TRADING AKTIEBOLAGET
Bibliotekgatan 6-8, Stockholm, Sweden

Subscriptions: (Payable in advance) By the year, $5.00; Single Copy, 15 Cents. *Postage Extra: To Canada, $2.00; To Other Foreign Countries, $3.50.* Member Audit Bureau of Circulation.

PAPER *established Feb. 17, 1899, combined with* PAPER TRADE JOURNAL, *Nov. 16, 1899.* PAPER *established Sept. 21, 1910, combined with* PAPER TRADE JOURNAL, *Feb. 19, 1926.*

All rights to the above titles reserved.

PAPER TRADE JOURNAL *is entered as Second Class matter at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. Publication Office at Lockwood Trade Journal Co., Inc., 34 N. Crystal St., East Stroudsburg, Pa. Printed in U. S. A.*

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PAPER TRADE JOURNAL *is indexed in Industrial Arts Index.*

CALENDAR OF COMING EVENTS

ASSOCIATION EXECUTIVES: Please send us your meeting dates and locations for this column as far in advance as possible. No charge for publication.

JULY 20: Sport and Field Day, Michigan Superintendents. Gull Lake Country Club, Kalamazoo, Mich.

AUGUST 16-17: TAPPI Plastics Conference. Institute of Paper Chemistry, Appleton, Wis.

AUGUST 18-20: TAPPI Fundamental Research on "Physical Constituents of Wood." Madison, Wis.

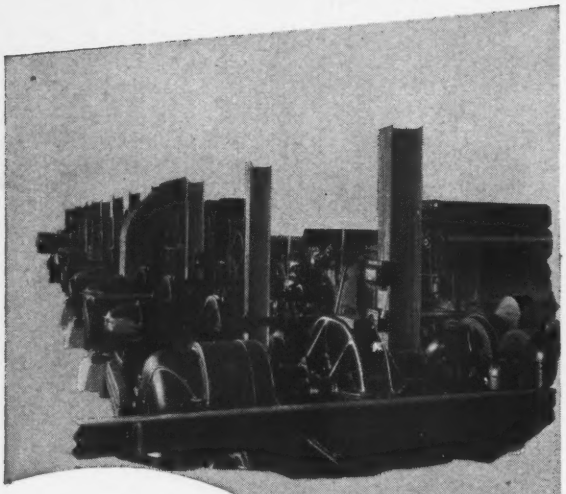
AUGUST 31: Annual Golf Tournament, Chicago Paper Trade Ass'n., Medina Country Club, Chicago, Ill.

SEPTEMBER 8-10: Technical Section, Canadian Association. Harrison Hot Springs, B. C.

Salesmen's Ass'n., of the Paper Industry—Eastern Division —Midston House, New York City. Mondays, 12 noon to 2:00 PM. Resuming in September.

Salesmen's Ass'n., of the Paper Industry—Western Division —Sherman Hotel, Chicago. Mondays, 12 noon to 2 PM. Resuming in September.

Allied Industries Luncheon Club—Second Monday of each month, Commodore Hotel, New York City. 12 noon.



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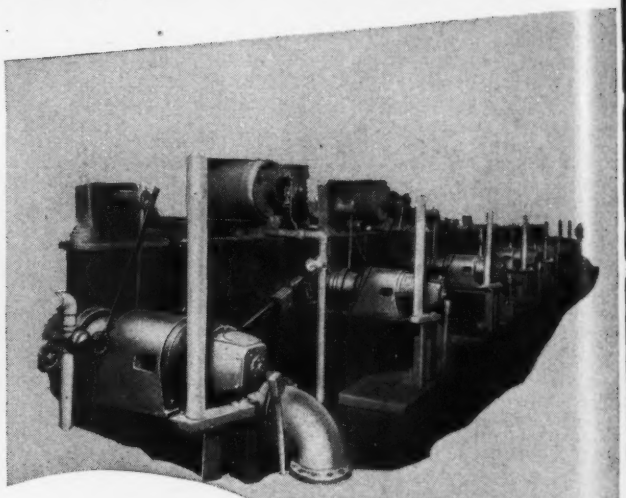

Helpful for "babying" felts

G-E HELPER DRIVES furnish the torque to take all the drive load off the felts, regardless of operating speeds or speed changes. Or they can be co-ordinated with the suction-box vacuum or other variables so as to counterbalance changes in the load. Felts are more fully protected from strain and friction, draw is more accurately regulated, and acceleration and deceleration are smoothly accomplished.

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Paper TRADE JOURNAL

VOLUME 127, NO. 2 REG. U.S. PAT. OFF. JULY 8, 1948

JOINT DINNER, Hotel Northland, Green Bay, Wis., June 19. At speakers' table, left to right: C. L. Durkee, A. Hansen, C. O. Collipp, Harold Chew, R. M. Radesch, F. X. Kreiling, S. Ekman, Mace Harris, Harry E. Weston and L. S. Sabatke.

'Pitch' Keynotes Green Bay Meeting of Superintendents

GREEN BAY, Wis.—Highlight of the spring meeting of the Northwestern Division of the American Pulp & Paper Mill Superintendents Ass'n., Inc., at Hotels Beaumont and Northland, June 18-19, was a symposium on pitch the morning of June 19.

Interest in the subject of pitch ran so high that the meeting room was completely filled, with all seats occupied and many persons standing. Representatives of pulp and paper mills in the Northwestern Division area presented briefs of the problem as it exists in their individual mills. Experiences, as reported, varied. Some contradict older, established concepts. Comments of the panel members indicated the acuteness of the problem and the difficulties involved in developing a satisfactory treatment for eliminating it.

Nothing seemed to be left undone by the mills to correct pitch difficulties. One of the amusing and yet serious conditions brought to light was the fact that pitch difficulties did not reappear consistently upon discontinuing the use of a pitch-control agent. Rather, production went on for some time without any further pitch difficulty. Why such a condition obtained was not known.

Several questions were asked by members of the listening audience following the comments of the panel members.

Mace Harris of Northwest Paper Co., Cloquet, Minn., functioned as moderator of the entire session. Other Association members active in the development and execution of the program were L. S. Sabatke of Marathon Paper Corp., program chairman, and F. X. Kreiling of the Thilmany Pulp & Paper Co., general chairman.

The afternoon of June 19 was given over to the presentation of three

(Continued on page 33)

How Draft Law Applies To Paper Industry

New York—The draft bill (S-2655) recently signed by President Truman gives the President complete authority to order any company to produce and deliver any materials or articles for the armed forces or for the use of the Atomic Energy Commission, E. W. Tinker, executive secretary of the American Paper & Pulp Ass'n., bulletined his members on July 1.

"The legislation also gives the President authority to take possession of any plant, mine or other facility and to operate it in case he finds this necessary," Mr. Tinker pointed out. The text of Section 18A of the new law is as follows:

(S 2655)

Sec. 18 (a) Whenever the President after consultation with and receiving advice from the National Security Resources Board determines that it is in the interest of the national security for the government to obtain prompt delivery of any articles or materials the procurement of which has been authorized by Congress exclusively for the use of the armed forces of the United States, or for the use of the Atomic Energy Commission, he is authorized, through the head of any government agency, to place with any person operating a plant, mine, or other facility capable of producing such articles or materials an order for such quantity of such articles or materials as the President deems appropriate. Any such person with whom an order is placed pursuant to provisions of this section shall be advised that such order is placed pursuant to provisions of this section. Under any such program of national procurement, the President shall recognize the valid claim of American small business to participate in such contracts, in such manufactures, and in such distribution of materials, and small business shall be granted a fair share of the orders placed, exclusively for the use of the armed forces or for other Federal agencies now or hereafter designated in this section. For the purpose of this section, a business enterprise shall be determined to be "small business" if (1) its position in the trade or industry of which it is part is not dominant, (2) the number of its employees do not exceed 500, and (3) it is independently owned and operated.

(b) It shall be the duty of any person with whom an order is placed pursuant to the provisions of subsection (a), (1) to give such order such precedence with respect to all other orders (Government or private) theretofore or thereafter placed with such person as the President may prescribe, and (2) to fill such order within the period of time prescribed by the President or as soon thereafter as possible.

(c) In case any person with whom an order is placed pursuant to the provisions of subsection (a) refuses or fails—

(1) to give such order such precedence with respect to all other orders (Government or private) theretofore or thereafter placed with such persons as the President may have prescribed;

(2) to fill such order within the period of time prescribed by the President or as soon thereafter as possible as determined by the President;

(3) to produce the kind or quality of articles or materials ordered; or

(4) to furnish the quantity, kind, and quality of articles or materials ordered at such price as shall be negotiated between such person and the Government agency concerned; or in the event of failure to negotiate a price, to furnish the quantity, kind, and quality of articles or materials ordered at such price as he may subsequently be determined to be entitled to receive under subsection (d); the President is authorized to take immediate possession of any plant, mine, or other facility of such person and to operate it, through any Government agency, for the production of such articles or materials as may be required by the Government.

(d) Fair and just compensation shall be paid by the United States (1) for any articles or materials furnished pursuant to an order placed under subsection (a), or (2) as rental for any plant, mine, or other facility of which possession is taken under subsection (c).

(e) Nothing contained in this section shall be deemed to render inapplicable to any plant, mine, or facility of which possession is taken pursuant to subsection (c) any State or Federal laws concerning the health, safety, security, or employment standards of employees.

(f) Any person, or any officer of any person as defined in this section who wilfully fails or refuses to carry out any duty imposed upon him by subsection (b) of this section shall be guilty of a felony and, upon conviction thereof, shall be punished by imprisonment for not more than three years, or by a fine of not more than $50,000, or by both such imprisonment and fine.

(g) (1) As used in this section—

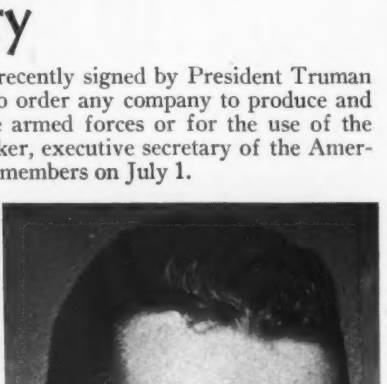
(A) The term "person" means any individual, firm, company, association, corporation, or other form of business organization.

(B) The term "Government agency" means any department, agency, independent establishment, or corporation in the Executive branch of the United States Government.

(2) For the purposes of this section, a plant, mine, or other facility shall be deemed capable of producing any articles or materials if it is then producing or furnishing such articles or materials or if the President after consultation with and receiving advice from the National Security Resources Board determines that it can be readily converted to the production or furnishing of such articles or materials.

(h) (1) The President is empowered, through the Secretary of Defense, to require all producers of steel in the United States to make available, to individuals, firms, associations, companies, corporations, or organized manufacturing industries having orders for steel products or steel materials required by the armed forces, such percentages of the steel production of such producers, in equal proportion deemed necessary for the expeditious execution of orders for such products or materials. Compliance with such requirement shall be obligatory on all such producers of steel and such requirement shall take precedence over all orders and contracts therefore placed with such producers. If any such producer of steel or the responsible head or heads thereof refuses to comply with such requirement, the President, through the Secretary of Defense, is authorized to take immediate possession of the plant or plants of such producer and, through the appropriate branch, bureau, or department of the armed forces, to insure compliance with such requirement. Any such producer of steel or the responsible head or heads thereof refusing to comply with such requirement shall be deemed guilty of a felony and upon conviction thereof shall be punished by imprisonment for not more than three years and a fine not exceeding $50,000.

(2) The President shall report to the Congress on the final day of each six-month period following the date of enactment of this Act the percentage figure, or if such information is not available, the approximate percentage figure, of the total steel production in the United States required to be made available during such period for the execution of orders for steel products and steel materials required by the armed forces, if such percentage figure is in excess of 10 per centum.



ALEXANDER CALDER, JR.

—elected a director of the Union Bag & Paper Corp., on July 1, joined the firm in 1940. He has served in the sales department and as assistant to the director of industrial relations. At present he is assistant to Leonard J. Doyle, vice-president in charge of sales. During the war Mr. Calder was an intelligence officer with the Board of Economic Welfare, and subsequently served for two years as a naval officer in the Pacific. He was born in Brooklyn, and is a graduate of Dartmouth College, 1938, and the Harvard School of Business Administration, 1940.

Logging Equipment Show Cooperstown, N. Y., Sept. 8-9

UPPER DARBY, Pa. — The newest in logging and lumbering equipment will be demonstrated at a logging equipment show to be held at Cooperstown, N. Y., September 8-9.

The show is being arranged by Fred C. Simmons, of the U. S. Forest Service's Northeastern Forest Experiment Station, Upper Darby, Pa., as one in a series of such shows in the Northeast. It will be held in connection with the summer meeting of the New York Section of the Society of American Foresters.

Loggers, lumbermen, and representatives of other forest products industries are invited to attend on September 8, when an "open house" will be held. There will be no admission charge or other fees.

On September 9, the demonstration will be repeated for the professional foresters and their guests.

Finn's Pulpwood Output Under Pre-Season Estimates

"Foreign Commerce" Reports

The supply of pulpwood in Finland, although not so short as to limit pulp production, is expected to fall a little short of preseason estimates.

At the end of March 1948, production of pulpwood had reached 30 million piled cubic meters, representing 67 percent of the felling quota of 45 million piled cubic meters planned for the season ended May 1948. It was expected that the cut for the season would approximate 35 million cubic meters. Stocks at wood-pulp mills in March were reported as unfavorable; however, industry spokesmen stated that all mills were assured of adequate supplies for the current year.

The increase in hydroelectric power available to the wood-pulp industry, as a result of reduced usage by civilian consumers and the spring thaw, made it possible to release the mechanical-pulp industry from power controls, and mills were resuming production for export. This did not mean an increase in the amount of mechanical pulp available for export, however, inasmuch as the 1948 production had, long since, been carefully estimated and sold. Export markets and proportions to be shipped to each remained unchanged.

During the first three months of 1948, exports of wet mechanical pulp amounted to 6,417 metric tons (dry weight), more than half of which went to the United Kingdom. Dry mechanical-pulp exports amounted to less than 300 tons during the period under review.

No significant changes affecting the rate of chemical-pulp production during the first quarter of 1948 were noted.

Exports of chemical pulp, exclusive of war reparations deliveries to the U. S. S. R., totaled 154,259 metric tons, dry weight, during the first quarter of 1948, as shown in the accompanying tabulation. More than half of the viscose (4,047 tons) went to France. The United States received the largest share (5,902 tons) of the bleached sulfite, whereas other important countries of destination included the United Kingdom (3,282 tons), the U. S. S. R. (2,756 tons), and France (1,568 tons). The United Kingdom took more than half of the unbleached sulfite, wet (7,480 tons); other purchasers were France, Denmark, the Netherlands, and Belgium-Luxembourg. Purchasers of the unbleached sulfite, dry, included the United States (19,133 tons), the United Kingdom, (13,495 tons), Denmark (3,918 tons), and South American countries (2,913 tons).

The United Kingdom took all of the bleached sulfate exports and most (8,523 tons) of the unbleached sulfate, wet. Exports of unbleached sulfate, dry, went chiefly to the United States (29,698 tons), the United Kingdom (16,513 tons), and the U. S. S. R. (5,603 tons).

Finland's exports of chemical pulp in the first quarter of 1948 (in metric tons, dry weight) was as follows:

Viscose	6,988
Bleached sulfite	16,086
Unbleached sulfite, wet (dry weight)	14,610
Unbleached sulfite, dry	45,815
Bleached sulfate	506
Unbleached sulfate, wet (dry weight)	12,748
Unbleached sulfate, dry	57,506
Total	154,259

SOURCE: Finnish Government Customs House work sheets.

Exports of paper, exclusive of war reparations deliveries to the U. S. S. R., totaled 70,000 metric tons during the first three months of 1948, and comprised the following principal types; Newsprint, 45,759 tons; kraft, 10,086 tons; writing and printing paper made with mechanical pulp, 8,883 tons; and writing and printing paper made without mechanical pulp, 4,581 tons. The principal types of paper exports in the first quarter of 1948, by countries of destination, are as follows (in metric tons):

Newsprint:	
United States	22,502
South American countries	9,713
U. S. S. R.	5,429
Denmark	4,550
Other countries	3,565
Total	45,759
Kraft:	
Denmark	2,987
United Kingdom	1,563
United States	956
Other countries	4,580
Total	10,086
Writing and printing paper made with mechanical pulp:	
United States	4,648
France	2,221
Australia	1,720
U. S. S. R.	1,035
Other countries	1,659
Total	8,883
Writing and printing paper made without mechanical pulp:	
U. S. S. R.	767
Australia	707
Netherlands	584
Denmark	560
United Kingdom	279
Other	1,684
Total	4,581

SOURCE: Finnish Government Customshouse work sheets.

Exports of paper board totaled 22,122 metric tons during the first quarter of 1948; the United Kingdom, Denmark, and the U. S. S. R. continued to be the principal markets.

The trade agreement signed in early March with the United Kingdom requires deliveries from Finland of 194,000 tons of chemical pulp, 30,000 to 40,000 tons of mechanical pulp, and 11,000 tons of newsprint. These amounts are all slightly less than the Finnish exports of such items to the United Kingdom in 1947.

A pulp manufacturing company recently purchased property adjacent to its sulfate pulp plant at Kotka, Finland, on which it expects to begin construction of a paper mill in 1950, according to a report. It is anticipated that this mill may be the largest in Europe.

Hammermill 50 Years Old

ERIE, Pa.—Founded in a wheat field east of town, the Hammermill Paper Co., was 50 years old on June 28. Files of Erie's old *Morning Dispatch* reveal that ground was broken on June 25, 1898, and that the official forming of the company was on June 28.

First known as Ernst R. Behrend & Co., the Hammermill name was adopted in May of 1899. The late Mr. Behrend was to be president of the firm for the next 40 years. His brother, Dr. Otto F. Behrend, Hammermill treasurer today, has held that office since the company was founded.

Old records reveal that the Hammermill at the turn of the century gave employment to 200 persons and that the entire plant consisted of two small clusters of buildings. Today 2,200 persons are employed and the firm's buildings and wood yards occupy 186 acres off East Lake road.

Recently the local plant completed a seven-million-dollar expansion program and introduced a new product, Cockletone Bond. A consistent advertiser since 1912, Hammermill for years has been among the best known names in paper and has carried the name of Erie to all parts of the globe.

As the company today quietly chalked off its half-a-century of progress, the plant was operating a full-production schedule and a Hammermill spokesman said it would continue to do so throughout the summer.

The Hammermill of today, it is said, can produce 650,000 pounds of paper daily in contrast to the 25,000 pounds of daily production in 1898. More than a year was spent in building the original Hammermill plant. The first paper was made on December 1, 1899, records show, and was sold to a Cleveland firm.

Cash for Norway Pine Cones Offered 4-H Clubbers

MERRILL, Wis.—Trees of Tomorrow discloses that 30,000 4-H Club boys and girls, land-owners, loggers and the public will be urged this fall to stage a gigantic search for Norway pine cones.

This all-out program has been launched because the seeding of Norway pine at state nurseries this fall will be dependent upon the quantity of cones collected. The cooperative project is a result of steps taken by the State Conservation Commission to expand forest nursery production.

The program was evolved at a meeting of the following committee members in Wausau on June 17: W. H. Brener, Wisconsin Rapids, manager of State Conservation Department nurseries; Richard Abbott, assistant extension forester, University of Wisconsin; Wakelin McNeel, Madison, State 4-H Club leader; and M. N. Taylor, Merrill, Executive Director, Trees for Tomorrow Inc.

Premiums for 4-H Booths

Cone collecting will be made a regular 4-H Club activity. The project will be worked out with State 4-H Club leaders under the direction of Wakelin McNeel and Richard Abbott. In addition, booths will be maintained by 4-H Club members at 25 county fairs in the cone-producing region. Premiums will be offered for the erection of booths featuring steps in the collection of cones.

Abbott will have charge of radio and newspaper information from Madison. It will be directed to 4-H Clubs as well as to the public in general.

Thirty collection points will be set by W. H. Brener at ranger stations. Brener emphasized the fact that the price per bushel would be advanced over the $5 per bushel offered last season.

Other species of cones—white spruce, jack pine, white pine, Norway spruce, and tamarack will be accepted at the receiving stations, but in more limited quantities. Because of the scarcity of Norway pine cones, no limit will be set upon this species.

Payment on Delivery

Cash payment will be made for cones delivered at ranger stations. Heretofore, payments were made by the state from Madison through regular channels. Funds for cash payment will be advanced temporarily by Trees for Tomorrow Inc.

Educational Booklet

This organization will also prepare a folder for distribution of 4-H Club members and the public containing sketches depicting the characteristics of Norway pine trees and copy describing a cone when it is ripe for collecting. The folders will be available July 15.

The cone-collecting season begins about the middle of September, although in some sections of the state this time period may occur ten days earlier. Normally pine cones ripen the middle of September and remain in good condition until the middle of October.

Mr. Brener stressed the need for widespread information because cones which have opened or cones with worm holes cannot be accepted.

On plantations or in the open forest, cones can be picked from Norway pine trees at 12 years of age or more. The greatest crop of cones comes from mature Norway pines, 60 to 80 feet in height.

N. C. Utilities Comm. Overrules R.R. Exceptions

RALEIGH, N. C. — The North Carolina Utilities Commission, overruling exceptions from the railroads, on June 29 refused to boost the increase allowed earlier in pulpwood rates.

The commission was informed by three rail lines: Southern, Seaboard and Atlantic Coast Line, that the 20 percent increase granted on June 28 is inadequate.

Meanwhile, it was pointed out that the commission's decision to pass over their objections left the roads the choice of accepting the rates or appealing within ten days to the courts.

Under the June 8 order, as reported in PAPER TRADE JOURNAL, the freight charges on a typical carload shipment of pulpwood increased from $18.60 for a 90-mile haul to $22.32. The Utilities Commission, in allowing the 20 percent increase, held the roads 15 percent under the 35 percent raise requested in their application. The latter, filed in May, 1947, and later amended, was heard before the commission last February. At the time of the hearing, representative North Carolina pulpwood users agreed to an increase of ten percent.

The commission's order chiefly affects four mills: North Carolina Pulp Co., Plymouth; Mead Corp., Sylva; Champion Paper & Fiber Co., Canton; and Halifax Paper Co., Roanoke Rapids.

Michigan Superintendents Frolicking July 20

KALAMAZOO, Mich. — The Annual Sports and Field Day of the American Pulp & Paper Mill Superintendents Ass'n., Inc., Michigan Division, will be staged at Gull Lake Country Club, July 20. Golfers will tee off at one o'clock, sharp.

"There will be lawn games for the non-golfers and plenty of Chinese Papermakers Money for the day's fun," Olin W. Calligan, secretary-treasurer, promises, "beside which there will be an oasis somewhere on the course."

Dinner is scheduled for 7:30, after which a short business session will be held to elect officers for 1948-49, after which prizes will be awarded.

In charge of the affair is the following committee: Paul W. Bartholomew, Hawthorne Paper Co., chairman; Lester J. Smith, St. Regis Paper Co.; and Roy W. Holden of Stow-Woodward, Inc.

Fox River Valley Mills Down for Vacations

APPLETON, Wis. — The Fourth of July week marked the period of vacations for many Fox River Valley paper mills and allied industries.

Appleton Machine Co. employes started their vacations June 26 and returned July 6.

The Fox River Paper Corp., Appleton, closed its plants the afternoon of July 3. Some of the 400 employes will be back Monday morning, July 12, but those with longer service will not return until July 19.

The Combined Locks Paper Co. employes had a vacation the previous week and were off this week also. A small maintenance crew was retained to install a new paper machine.

All of the productive units of the Thilmany Pulp & Paper Co., Kaukauna, closed July 4, and will remain closed until July 12. A skeleton crew of construction and maintenance workers remained on the job.

Neenah Foundry, Neenah, resumed operations July 6 after having been shut down the previous week.

George A. Whiting Paper Co., Menasha, will resume work July 12 after having been closed for two weeks, with the exception of work by repair crews.

Bergstrom Paper Co's. mill at Neenah also was down last week.

All other mills were down for the holidays.

Holiday Shutdowns Slow Waste Paper Movements

NEW YORK—Some of the mills are down this week and virtually all were closed over the Fourth of July holiday. Mill executives report that they will continue to purchase waste paper during this period. A few that have fair-sized inventories may not purchase heavily. Some have small inventories, but not much storage space. There are mills in the East, however, that have storage space for a few thousand tons, and they have indicated that they will continue to buy well-packed waste paper of high quality.

During the long holiday week-end there were few if any collections from office buildings, banks, stores, etc.

Waste material dealers generally continued activities over the holiday and vacation period. Many have been more active in scrap metals than waste paper.

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Patent Rules Overhaul Planned

Washington—The United States Patent Office on July 2 informed PAPER TRADE JOURNAL that a proposed revision of patent rules has been compiled in the form of a 39-page booklet entitled "Proposed Revision of Patent Rules." The booklet was issued as a supplement to the Official Gazette of the U. S. Patent Office under a June 29 dateline.

Lawrence C. Kingsland, Commissioner of Patents, said:

"The proposed rules and regulations are issued pursuant to the authority contained in the patent laws, R. S. 481, 483, 487, 4905, 35 U. S. C. 6, 11, 53, and will upon promulgation supersede and replace the rules of practice in patent cases now in force, 37 C. F. R., part 1.

"The proposed rules and regulations are available in printed form at the Patent Office and will be sent to all interested parties upon request to the Commissioner of Patents, Washington 25, D. C. Copies are being mailed to all attorneys and agents registered in the Patent Office and to all subscribers to the Official Gazette of the U. S. Patent Office, and it is unnecessary for these persons to write or ask for copies.

"Certain of the proposed rules will directly affect the practice in trade-mark cases in view of the references to the patent rules contained in trade-mark rules 37 C. F. R., sec. 100.42, 100.235, 100.264. It may also be expected that revisions of the trade-mark rules (37 C. F. R., part 100) to parallel changes in the patent rules will be announced.

"All persons who desire to submit written data, views, arguments or suggestions for consideration in connection with the proposed revision of the rules and regulations are invited to forward the same to the Commissioner of Patents, Washington 25, D. C. These should be received before September 25, 1948, to insure full consideration.

"In addition to submitting briefs or statements, those who desire may be heard orally. Hearings are scheduled to commence at 10:00 o'clock A. M. on Monday, September 27, 1948, and will be continued as may be necessary. Monday, and Tuesday if necessary, will be devoted to all the rules except those parts stated below. The parts of the rules relating to interferences are scheduled for hearing on Wednesday, September 29, and the parts relating to the registration of attorneys and agents on Thursday, September 30.

"Persons expecting to appear for oral presentation are requested to notify the Commissioner in advance of the hearing, stating the sections of the draft on which they wish to be heard, in order to assist in arranging the hearings."

Swedish Restrictions On Imports Continued

WASHINGTON—Present import restrictions by the Swedish Government will be continued for another year, under an arrangement between that country and United States representatives designed to help Sweden conserve its dollar funds and other hard currency, it was disclosed on June 28.

Restrictions were imposed in March, 1947 originally, to expire, so far as the United States was involved, June 30, 1948. However, said the Swedish Embassy here, "Because of the large deficit in the Swedish balance of payments with the hard currency areas of the world it is recognized that the Government of Sweden continues to be faced with necessity of taking measures to correct its present inbalance of trade and to conserve its foreign exchange. The import restrictions imposed by the Government of Sweden on March 15, 1947, as presently applied are understood to serve these purposes."

Sweden has had a trade agreement with the United States since 1935, which it was necessary to modify in order to impose these restrictions. Arrangements were made with this country for modifications now in effect, but as the expiration of this understanding neared, discussions were held with the State Department here. It has now been agreed between the two countries that due to Sweden's continued shortage of hard currency, aggravated by the deficit in Swedish trade with hard currency areas, the arrangement will be extended to June 30, 1949, or until Sweden becomes a party to the Geneva trade agreements, whichever is earliest.

Newsprint Newfoundland Value Leader

WASHINGTON — Based on value of exports, newsprint has assumed a leading position in Newfoundland's economy in recent years, says an American survey of the industry received here on June 30.

Actually, it was pointed out, Newfoundland's fisheries employ more people than the pulp and paper industry, also both the paper mills in Newfoundland are owned elsewhere, so that profits do not accrue to the Island primarily.

However, newsprint is the principal product of the pulp and paper industry of Newfoundland, and newsprint production there in 1947 amounted to 388,162 short tons, with exports of approximately 358,00 tons, valued at $24,028,683 that year. In 1947, incidentally, Newfoundland exported more newsprint to the United States than to all other countries combined.

On a value basis, Newfoundland's 1947 newsprint exports set a record. In the same year, pulpwood cut was 805,807 rough cords, the greater part of the 1947 cut being used by home mills.

During occasional years, the survey reported, considerable quantities of baled mechanical pulp and sulphite chemical pulp have been exported.

The two paper mills mentioned, Bowaters' Newfoundland Pulp and Paper Mills, Ltd., at Corner Brook, and the Anglo-Newfoundland Development Co. Ltd., at Grand Falls, are described as very large in comparison to either those in this country or Canada. Both companies, in view of the generally favorable immediate outlook for pulp and paper, it was stated, have planned expansion of capacity.

Wisconsin Paper Industry Employment Increases

MADISON, Wis.—Employment in the Wisconsin paper industry and allied products gain 0.2 percent in May, compared with April, according to the Wisconsin Industrial Commission. The report shows 28,200 employes for each month, but explains that the gain is computed from actual rather than round figures.

Total weekly payrolls averaged 1.5 percent higher; $1,596,000 in May and $1,572,000 in June. The hourly pay averaged $1.299 and the average work week was 43.5 hours, bringing the average pay to $56.52 a week.

In Milwaukee County, 20 manufacturers of paper and allied products reported a 2.0 percent increase in the number of employes on payrolls, the total for May being 3,232, but payrolls were $167,936 per week, down 2.7 percent. The average hourly pay was $1.268, the average week was 41.0 hours and average pay per worker was $51.96.

Book Paper Case

NEW YORK—The Book Paper Manufacturers Ass'n., and member companies affected by the decision of the U. S. Circuit Court of Appeals, Seventh Circuit, in the so-called Book Paper Case (see *Paper Trade Journal*, June 24, page 14, are considering whether to petition for a writ of certiorari for a review by the Supreme Court, the law firm of Wise, Corlett and Canfield told E. W. Tinker, executive secretary of the American Paper & Pulp Ass'n., on June 28. "If this is done, the scope of the Commission's order under the recently enacted Administrative Procedure Act will be up for consideration as well as other points bearing upon this particular case," a spokesman of the law firm stated.

Forestry Advisory Committee Planned for Wisconsin

MADISON, Wis. — Formation of a forestry advisory committee was considered at a meeting here July 6 by the Wisconsin Conservation Commission. The committee would formulate a long-range program to make the most of the state's forest resources.

Such a committee was suggested to the commission early in June at a meeting with paper mill and lumber representatives at Wisconsin Rapids. It would represent sulphite, kraft, lumber and veneer industries.

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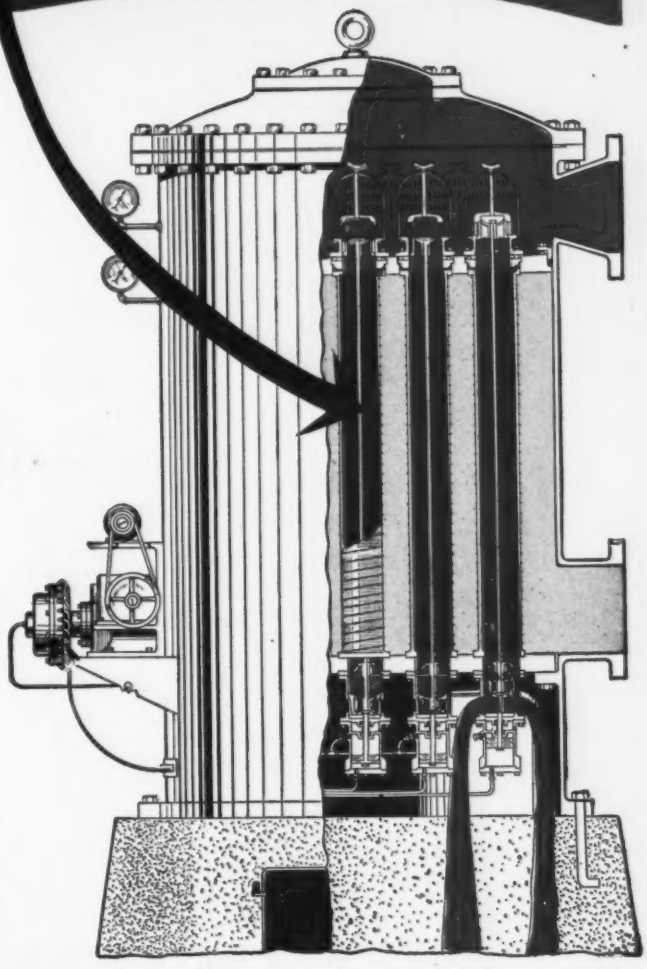

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ADAMS PORO-STONE AND PORO SCREEN FILTERS

What People Want to Know About Your Company

NEW YORK—"Most annual reports of the general type now being issued by corporations fail in their purpose of informing people about these companies," says Daniel J. Hennessy, president of the Controllership Foundation.

"According to the findings of a survey conducted for the Foundation by Elmo Roper," he explained, "part of the large sums of money now being spent on company annual reports might well be directed into other channels if we wish to overcome misunderstanding and suspicion of business."

The survey referred to by Mr. Hennessy is being published by the Foundation, and is entitled "What People Want to Know About Your Company." It discloses that the average shareholder has little interest in corporation financial data. Only 11 percent of those responding in the survey mentioned balance sheet items as things they needed to know about in order to keep track of an investment, while 40 percent of the "run-of-the-mine" stockholders professed to find no utility in the brochures they receive.

"The average stockholder is naturally anxious to get dividends," the Foundation's report declares, "and he is interested in what the chances are that his company will remain strong enough to safeguard his capital and pay the same, or a bigger, return on his money. To him these are simple questions that can be answered in a paragraph. If the company gives him complicated tables, charts and pictures, and page after page of text, there may be some danger of 'report indigestion.'

"The needs of large investors are another matter. Most of them are interested in all the details now published and want still more, but there is a vociferous minority who object to the new trend toward glossy paper, pictures and expensive format, terming them awaste of money."

The study reveals that no annual report issued for stockholders in general is likely to satisfy the needs of bankers, trust officers, financial analysts, investment counselors and other more sophisticated consumers of financial data, most of whom were found to have a variety of other sources of information.

In order to satisfy the run-of-the-mine stockholders who crave simple, easy-to-read information, and at the same time not to deprive the more sophisticated investors of the accounting facts and figures, the Foundation's report recommends that the present practice of sending all stockholders the same type of annual report should be reconsidered. A more effective public relations technigue, it suggests, might be to send them a one-page statement signed by the president, outlining earnings, dividends, general financial position and outlook of the company—and then offering a complete financial report on request. The latter would be a full-scale annual report designed primarily as a source document for those who wish ready access to "cold statistical facts."

The same brief digest appeals to employees, the report confirms. National labor leaders, on the other hand, were found to be primarily interested in facts useful to them in bargaining, so that they would know when to ask for increases and be able to support their claim that the company is in a position to pay. Local labor leaders and shop stewards who were interviewed professed little interest in the annual report.

Mr. Hennessy, who is president and chairman of the board of Controllership Foundation, is vice-president and a director of the Jamaica Water Supply Co., Jamaica, N. Y.

Packaging and Materials Handling Short Course

URBANA, Ill. — Sponsored jointly by the University of Illinois extension division and the Industrial Packaging Engineers Ass'n. of America, the Packaging and Materials Handling Short Course at the Hotel Sherman, Chicago, October 4-7, is expected to attract many hundreds of registrants. On October 5-7, the course will run concurrently with the Association's third annual Industrial Packaging and Materials Handling Exposition.

Eleven sessions that will include 40 talks and panel discussions will sight upon such vital problems as principles of materials handling, automotive and allied industries packaging, plant layout, work simplification and flowcharts, application of materials handling to small businesses, carloading - bracing - blocking, closure methods and marking, and a host of others.

OTS Service Continues

WASHINGTON—The Office of Technical Services will continue its services to business and industry in the next fiscal year, John C. Green, OTS director, said on July 2. The operating plan calls for trimming but not abolishing services.

Key reference to the OTS technology collection is the *Bibliography of Scientific and Industrial Reports.* Since January 1946 the *Bibliography* has appeared weekly. Each issue has contained about 1,500 titles and abstracts of reports acquired.

"Beginning this month the *Bibliography* will be published monthly instead of weekly, and it will appear in less expensive format than formerly," Mr. Green explained. "Each monthly issue will list about 2,000 titles of OTS reports, but it will contain very few abstracts. Yearly subscriptions to the *Bibliography* will cost $10 ($14 foreign). Single copies will be $1 ($1.50 foreign). Orders for the *Bibliography* are to be addressed directly to OTS.

Industrial Packaging Engineers Admit Six New Members

CHICAGO — New members recently admitted to the Industrial Packaging Engineers Ass'n. of America include the following individuals: A. C. Lipski, Gaylord Container Corp., Milwaukee; Martin Baumann, International Paper Co., Chicago; Henry J. Wagner, Union Paper & Twine Co., Cleveland; C. E. Munz, Central Ohio Paper Co., Detroit; and S. F. Allison, Ohio Boxboard Co., Akron.

Raisin River Paper Co. has been admitted to corporate membership, represented by Edw. C. Hollingsworth, Hobart V. Hodge and Lawrence W. Reaume of Monroe, Mich.; Roy A. Schellhous, Detroit; Albert W. Schulte, Cleveland; John E. Trant, Chicago; and Lawrence P. Jones, Washington, Pa.

Packaging-Materials Handling Expo Chicago, October 5-7

CHICAGO—The Third Annual Industrial Packaging and Materials Handling Exposition, sponsored by the Industrial Packaging Engineers Ass'n., at Hotel Sherman, Chicago, October 5-7, promises to be the outstanding event of its kind, A. C. McGeath of the American Box Board Co., general chairman of the event, reported to *Paper Trade Journal* on July 2.

Paper manufacturers and converters who have reserved exhibit space, to date, include: American Boxboard Co., Gaylord Container Corp., Gummed Products Co., Industrial Tape Corp., Kimberly-Clary Corp., Mid-States Container Corp., Mid-States Gummed Paper Co., Sefton Fibre Can Co., and Sherman Paper Products Co.

Marathon County's Forest Products Value Up 39%

WAUSAU, Wis.—The estimated value of forest products on hand in Marathon County in 1948 is $910,502.44 higher than in 1947, according to a report to William F. Rohlf, district supervisor of assessments. This increase is almost 39 percent, according to Rohlf. Total value of these stocks, as estimated, was $2,856,384.92 in 1947 and $3,226,887.36 in 1948. Stocks of pulpwood, lumber and other forest products are included in the total.

Athletic Field Given Wentworth's Name

Walter V. Wentworth, manager of the Penobscot Chemical Fibre Co. was honored recently when the name of the company's athletic field at Great Works, Maine, was changed to Wentworth field.

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Bird and Son Mark 153d Anniversary

EAST WALPOLE, Mass. — During the week of June 20, Bird & Son, Inc., celebrated the 153rd anniversary of the founding of the company by the great grandfather of the present chairman of the board of directors, Charles Sumner Bird, Jr. The first day of the celebration, sales representatives from all over the country arrived in Boston for a meeting of the building materials division.

The company's history was reviewed by E. L. Chamberlain, vice-president, at a dinner in the Parker House, June 21.

In 1795 George Bird, the founder, built his first mill on the Charles River at Needham, Mass., and in 1812, needing larger facilities, removed to East Walpole.

A variety of products have been made during the years for the United States Government, ranging from paper for currency in the years before the War of 1812 to 40mm anti-craft shells, waterproof cartons, flooring and roofing products during World War II.

The program for the week included trips through the mills in the East Walpole area, discussions of sales problems, and recreational activities, including a Boston Pops Orchestra concert, Braves-Cardinals ball game, and sightseeing trips in the Boston area.

The climax of the convention was a banquet on June 25 at which Norman P. Mason, president of the National Retail Lumber Dealers' Ass'n., spoke.

Young E'ected Pond's Extract Co. V.P.

NEW YORK — Robert M. Young has been elected vice-president of the Pond's Extract Co., 60 Hudson Street. Mr. Young is head of the division manufacturing Pond's tissues. He came to Pond's in 1943 from the Scott Paper Co., Chester, Pa.

Born in Denver, Colo., Mr. Young attended the University of Denver, and was graduated in 1931 from the University of Michigan, with B.S. and M.E. degrees. While in college he was intercollegiate wrestling champion and a letter man in college tennis. Mr. Young attended the University of Maine for a year during his period with the Scott Paper Co., and received an M.S. degree there in pulp and paper technology.

Mr. Young is chairman of the Facial Tissue Division and a director of the Tissue Ass'n.

Soaring Costs Halt Baltimore Mill Plan

BUFFALO, N. Y. — National Gypsum Co. reports that its agreement with the City of Baltimore regarding further expansion in that city has been canceled by mutual consent "because of the great increase in plant-construction costs." Cancellation of the agreement, under which the city, through its Port Development Commission, was to help finance the proposed plant expansion, has resulted in an indefinite postponement of the Baltimore expansion, the company said.

When the agreement was made some time ago, National Gypsum estimated that its new Baltimore paper mill to be built near its plaster mill, would cost around $5,000,000. It is now estimated the same plant would cost around $8,000,000. National's stake in the project would have been $2,800,000. The Port Development Commission was to put up $2,400,000.

However, this agreement was opposed by the U. S. Gypsum Company, a competitor of National. U. S. Gypsum challenged the right of the commission to help finance the project. The case was headed for the courts when the contract was dropped. However, National said it plans to consider a similar contract when the proposed expansion in Baltimore comes up again.

New Water Supply For Wausau Paper Mills

BROKAW, Wis.—This village and the Wausau Paper Mills Company, its only industry, have been assured an adequate supply of pure water. An 8-hour test run produced water at the rate of 3,000 gallons a minute from a new well. The test was conducted June 30.

Ben Prellwitz, village president, said that the water contained less than one part of iron content in 1,000,000, a complete absence of manganese and virtually no other impurities.

The water, turned into the village mains immediately, makes it unnecessary for the Wausau Paper Mills to depend on filtered Wisconsin River water for use in its manufacturing processes, village officers asserted.

An original well, which now can be pumped at 350 gallons a minute, is used entirely to supply the mill but is far from adequate to meet its needs.

Crossett Paper Mills To Double Facilities

CROSSETT, Ark.—A three-year building program to nearly double paper making facilities at the mill has been begun for Crossett Paper Mills.

Initial contracts, awarded the Rust Engineering Co., Pittsburgh, provide for a new two-story personnel building, an addition to the digester building and new paper machine installation with auxiliaries. Engineering is underway and construction has begun.

The personnel building, to provide facilities for 900 men, will have radiant heat, individually ventilated lockers, glazed tile walls, sanitary floors, and a covered passage from the employes' parking lot. It will include a waiting room and personnel director's office located so that all workmen will pass his door at every shift change.

The digester building extension, to be built of steel and brick, will house three additional digesters, increasing the total number from five to eight. The digester extension and personnel building are expected to be completed in November.

Design has begun and construction will begin in the fall on an addition to existing paper machine facilities. The present paper machine building will be lengthened to accommodate a 210-inch high speed machine for making light weight Kraft paper. Contracts covering the installation of the remaining pulp making and refining equipment are expected to be announced soon.

Masonite Building 37-Mile Road

UKIAH, Calif.—To provide access to its redwood timber reserve in the western part of Mendocino county, the Masonite Corp. on June 30 awarded a contract for construction of a 37-mile private truck road.

The two-lane road will extend from the plant to be built by the company north of this city up Ackerman creek and thence to a connection on the west with the Fort Bragg highway near the junction of the Navarro river and its north fork. Owners of other timber land to be tapped by the new road will use it on a toll basis to truck out saw logs. Chief among these are the Standish & Hickey Co. and the Union Lumber Co.

Building of the access road is the first construction step in the execution of the west coast expansion program announced by Masonite last March. It included the purchase of more than 50,000 acres of redwood timber, known in northern California as the Albion tract, from the Southern Pacific Land Co.; purchase of a factory site of more than 100 acres near Ukiah and negotiation of right-of-ways for the truck road. Completion of the entire project will require the expenditure of several million dollars.

E. T. F. Wohlenberg, Masonite general manager, said the company's engineering staff is well advanced on designing the Ukiah plant buildings and that orders for machinery and equipment will be placed at an early date.

Hercules Paper Box Co. Incorporated

BRIDGEPORT, Conn.—Hercules Paper Box Co., has been incorporated by James A. Moon, president; Joseph Chislark, vice-president; Michael J. Ceruzzi, treasurer, and Frederick W. Fairchild, secretary. These and Daniel F. Wheeler are directors.

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OTHERS are doing it. They have found that a sure way to boost production is to use Stainless Steel where corrosion-resisting construction is required—where there is danger of product contamination—where down-time for repairs and replacement must be reduced.

It is not mere coincidence that those mills whose production records are consistently among the highest in the country are also the biggest users of Stainless Steel. Most of them have been using Stainless Steel for years and have been consistently extending its application. Here are a few facts their experience with Stainless has developed:—

Digester outlet nozzles lined with Stainless Steel take on a new lease of life . . . corrosion and erosion troubles in digester strainers are so decreased that they have stayed in service as much as 10 times longer when made of U·S·S Stainless . . . Stainless Steel rods and winding wire in cylinder molds, washers and save-alls last for years instead of weeks . . . by using U·S·S Stainless for beater bars and Jordan linings, paper contamination due to corrosion and abrasion of ordinary steel can be eliminated and far longer service is the rule . . . in a west coast mill, U·S·S Stainless tubes in the first effect of a sulphate evaporator were going strong after 8 years' service, where carbon steel tubing lasted only 9 months.

But why go on? Just remember that in every case cited here, where service life has been increased, you can be sure that mill interruptions have been proportionately reduced, and bigger output has resulted. That's why it pays to use Stainless Steel.

In U·S·S Stainless Steel we offer you a *complete* family of perfected special-purpose steels that will meet almost any requirement of pulp and paper mill service. Our engineers are specialists in its uses and will gladly assist you in selecting the proper type to ensure the greatest benefits from its application.

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Graebner and Miss Webster Address Secretaries Club

MENASHA, Wis.—"Marathon Manufacturing Operations" were discussed June 27 by W. H. Graebner, resident plant manager of Marathon at Menasha, in a talk before the Marathon Secretaries Club. He discussed the huge Canadian plant where about 300 tons of bleached sulphate are produced daily, and summarized the operations at the Rothschild and Wausau pulp mills as well as the converting plants in Menasha.

Miss Nell Webster told of her experiences when she first entered the company's employ in 1906 and compared the office equipment used then with present equipment. She spoke about the increase in personnel and the products developed from year to year.

Warren's Sutermeister Honored

Edwin Sutermeister, of Westbrook, Me., was the recipient of an honorary degree of Doctor of Science from the University of Maine at the Commencement Exercises held in Orono on June 20. He was graduated from M.I.T. in 1899, and has been active ever since in pulp and paper research and development. In 1935 he was the TAPPI Medallist, receiving the medal "in recognition of his many contributions to the art and science of papermaking." He is the author of "Chemistry of Pulp and Paper Making," of "Casein and Its Industrial Applications" and of articles dealing with pulp and paper technology. For many years Dr. Sutermeister has been a member of the research staff of the S. D. Warren Co. at Cumberland Mills, Me.

Manning's Warren Retiring —Hayes Named Successor

ALBANY, N. Y. — James F. Adams was renamed president of the John A. Manning Paper Co. at the quarterly meeting of the board of directors at the plant office in Green Island.

Eugene Warren, for more than 45 years an employe, announced his retirement as treasurer. He will be succeeded by Joseph V. H. Hayes.

Other officers are: Vice-presidents, Francis E. Gallagher and Albert S. Loring; secretary, William H. Manning and assistant, Arlie G. Smith.

Leeds Adds Graduate G.I. Men

NEW YORK — Stanley Winkel and Seymour Felker, who have completed training under the G.I. Bill of Rights, have been added to the sales force of the Leeds Sales Co. Earlier graduate trainees now on the force are Alvin Sobel, George Bartlett, Francis Romano and Leo Glantz.

Buy Nazareth Company

BETHLEHEM, Pa.—Clara Finkel of Allentown and Joseph Bell of Nazareth have bought the plant and equipment of the Nazareth Paper Box Co., at a reported price of $73,000. Previous owners were Frederick D. and Grace E. Wood of Nazareth.

Thilmany Pulp & Paper Co. Ups Wages Six Percent

KAUKAUNA, Wis. — A 6 percent increase in wages at the Thilmany Pulp and Paper Company was announced July 1, after contract negotiations between the company and the International Brotherhood of Pulp, Sulphite and Paper Mill Workers and the International Brotherhood of Paper Makers, both AFL. An increase of 2 cents an hour also was granted in the shift differential for work on the second and third shifts, making the new rate 7 cents an hour.

The base pay for women now is $1.04 an hour and for men $1.18. The company has about 1,100 employes paid on an hourly basis.

The company expects to announce a retirement plan for hourly paid and salaried workers in the near future.

The new contract will extend from August 1, 1948, through July 31, 1949, but the pay increase is effective as of June 27, 1948.

New Hubbs & Howe Directors and Officers

BUFFALO, N. Y. — At the annual stockholders' and directors' meeting of the Hubbs & Howe Co., paper and twine distributor, with offices and warehouses in Buffalo, Cleveland, Erie and Niagara Falls, on June 9, the following directors and officers were elected:

Directors—F. W. Howe, M. D. Gascon, R. C. Kettles, Jr., L. R. Ricketts, J. R. Hoover, F. L. Hickler.

Officers elected were F. W. Howe, president and general manager; M. D. Gascon, first vice-president and assistant general manager; F. L. Hickler, T. W. Utterback, J. R. Hoover, H. G. Ihsen, D. C. Stroud, vice-presidents; and L. R. Ricketts, secretary-treasurer.

President Howe states that improvements in organizational efficiency have been effected to render increased service to the Buffalo, Cleveland, Erie and Niagara Falls markets.

Hinde & Dauch, Canada, Tonnage Sales Increasing

TORONTO—The Hinde & Dauch Paper Co. of Canada expects to finish 1948 with heavier tonnage sales than last year, L. F. Winchell, vice president and general manager, reported. Although demand softened somewhat during the first six months, the company has been able to maintain production at last year's level, Mr. Winchell discloses.

Three Northwesterners Upped

CLOQUET, Minn.—Bernard W. McEachern has been elected vice-president and general sales manager of The Northwest Paper Co.; Clarence P. Sheldon, assistant general sales manager, and Orlo F. Brower, district sales manager of merchant grades. Mr. McEachern and Mr. Sheldon have offices here. Mr. Brower's office is in Chicago. The company is currently celebrating its 50th anniversary.

Joint Luncheon Committeemen Named by SAPI and P&TA

NEW YORK—Members of the committee for the Joint Fall Luncheon of the Salesmen's Ass'n., of the Paper Industry and of the Paper & Twine Ass'n., at the Stevens Hotel, Chicago, October 29, have been named by both groups.

SAPI members are Chicago representatives of three mills: D. H. Keck of the Kimberly-Clark Corp.; Wm. S. Wagley of the Wausau Paper Mills Co.; and Ben K. Babbitt, of the Brown Co.

P&TA members are: E. J. Durkin, vice-president, Chippewa Paper Co., and Robert Knox of Knox & Schneider, both of Chicago.

1,300 Carloads of Pulp Monthly to Southeast Mills

CUTHBERT, Ga.—According to F. P. Love, Central of Georgia Railroad agent here, Randolph countians reap their share of the profits from the 1,300 cars of pulpwood shipped monthly from the Georgia counties in the Chattachoochee valley to nine paper mills in the Southeast.

Mr. Love said that four or five cars daily are loaded at the Central depot here, and others at the Seaboard Air Line. Loading stations in the county are: Cuthbert, Springvale, Shellman and Coleman.

Belgium-Luxemburg Get Norway Output

WASHINGTON—Export of 50,000 metric tons, wet weight, of mechanical pulp, and substantial quantities of paper and cartons, from Norway during 1948, are called for under additional terms of a trade agreement between that country and Belgium-Luxembourg, according to official information received here June 30. During 1947, Norway exported to Belgium-Luxembourg 120,150 tons of mechanical pulp and large quantities of paper and cartons.

France's African Colonies Plan Pulp Production

WASHINGTON—As part of the ten-year program of the French Colonies in Africa, export goals have been set up which include exportation in 1956 of 90,000 metric tons of paper pulp, probably from French West Africa, French Equatorial Africa, and the Cameroons, compared with none in 1938, a representative pre-war year, the U. S. Department of Commerce reports.

Ecustans Picnic

PISGAH FOREST, N. C.—Ecusta Paper Co. employes held their seventh annual picnic at Camp Sapphire on July 5. Attendance approximated 5,000. Featured speaker was the Hon. Charles M. Johnson of Raleigh. Feature of the day, aside from sports and the usual picnic pastimes, was a baby parade under the direction of Mrs. Harry H. Straus.

LODDING DOCTORS

Wherever a good doctor is needed . . Lodding Engineering Corporation. Worcester, Mass. Represented outside New England by W. E. Greene Corporation. Woolworth Building, New York.

★ Breaker rolls

ASTM Meeting Features Apparatus Exhibit

DETROIT—With more than 135 technical papers and reports of ASTM committees, some 360 committee meetings, and an extensive exhibit of testing and research apparatus and laboratory equipment, the Fifty-first Annual Meeting of the American Society for Testing Materials June 21-25 again emphasized the importance of work in materials.

There were 52 new tentative specifications and tests approved and about 70 existing tentatives are to be adopted as standard subject to Society letter ballot during the summer.

Total registration was over 1,775 compared with 1,835 for 1946 and 1,786 for the Annual Meeting in Atlantic City in 1947.

Richard L. Templin, assistant director of research and chief engineer of tests of the Aluminum Co. of America, New Kensington, Pa., was elected president for 1948-1949, succeeding T. A. Boyd, research consultant, research laboratories division, General Motors Corp., Detroit, Mich., who continues on the board of directors as past-president for three years.

L. J. Markwardt, assistant director, U. S. Forest Products Laboratory, Madison, Wis., is the new vice-president to serve with the senior vice-president J. G. Morrow, metallurgical engineer, Steel Co. of Canada, Ltd., Hamilton, Ontario, Can.

Directors are: Leslie C. Beard, Jr., chemist, and assistant director of laboratories, Socony-Vacuum Oil Co., Inc., New York, N. Y.; Simon Collier, director of quality, Johns-Manville Corp., New York; Theodore P. Dresser, Jr., chief engineer, Abbot A. Hanks, Inc., San Francisco, Calif.; Howard K. Nason, associate director, Central Research Dept., Monsanto Chemical Co., Dayton, Ohio; Edgar W. Fasig, general superintendent, Lowe Brothers Co., Dayton, Ohio.

Officers of Committee D-6 on Paper and Paper Products were elected, as follows: William R. Willets of the Titanium Pigment Corp. Service Laboratories, chairman; Max A. Krimmel of the Hammermill Paper Co., vice-chairman, and Henry A. Birdsall of the Bell Telephone Laboratories, Inc., secretary.

Committee D-6, which was formed over ten years ago, deals with testing methods for paper and paper products, the significance of such methods, nomenclature and definition of terms. It is also conducting a study of the need for specifications with the ultimate end of preparing them where they would be desirable. At present the committee comprises some 80 members including producers and consumers of paper, paperboard and paper products, as well as general interest members.

The 1949 Annual Meeting of the Society was held in Atlantic City from June 27-July 1. The 1949 Committee Week and Spring Meeting will be held in Chicago, February 27-March 4. In addition, a number of ASTM technical committees will hold group sessions separately or may combine with other committees in the same field for three- or four-day meetings in the fall or spring.

Stein, Hall's Caeser Joins Huron Milling Co.

NEW YORK—George V. Caesar, who has been in charge of starch research for Stein, Hall & Co., Inc., for 20 years, is now with the Huron Milling Co. For over 25 years, Stein, Hall has been exclusive selling agent for Huron's textile wheat starches. Huron will continue to manufacture for Stein, Hall, corn and wheat starch specialties, for industrial uses.

Campbell Curtis Sales Rep. In Mid-West

NEWARK, Del. — Keith S. Campbell has been appointed mid-west sales representative for the Curtis Paper Co. He will be in complete charge of appointing Curtis agents for the Tweedweave, Colophon and Stoneridge lines, as well as handling sales promotion and distribution problems on specialty grades made by the Curtis mill. Mr. Campbell will maintain an office at 308 West Washington Boulevard, Chicago.

Keith S. Campbell

England's Sands Visiting U. S. Paper Mills

NEW YORK — R. G. Sands of the Carrier-Ross Engineering Co. of London, Eng., recently visited paper manufacturing and converting plants in this country. While here he spent much of his time with various officials of the J. O. Ross Engineering Corp., of which his company is an English affiliate. With Ross executives in New York and Chicago, Mr. Sands was able to see the equipment and operations in many plants including Behr-Manning Corp., Troy, N. Y.; Millprint, Inc., Stoughton, Wis.; paper mills of the Consolidated Water Power & Paper Co., Wisconsin Rapids and Biron; Rhinelander Paper Co., and the converting division of Time Inc., at Kalamazoo.

Behrends Joins Taylor Co.

CHICAGO—E. (Ed) L. Behrends has joined the general sales department of the Taylor Forge & Pipe Works which operates plants at Chicago and Carnegie, Pa. He formerly was vice-president of the George B. Limbert Co., and later became manager of the Western Supply Division of the Lummus Co. operating the former Limbert facilities.

Texas Gulf Sulphur Co.'s Fourth Mine Producing

HOUSTON, Tex. — The Texas Gulf Sulphur Co.'s new sulphur mine near the Trinity River, in Liberty County, went on production late in June after 95 hours of steaming. The mine is the fourth one in Texas to be developed by the company since 1918.

Ansul Advances Rinelli

MARINETTE, Wis. — Ansul Chemical Co., manufacturer of sulfur dioxide, methyl chloride and dry chemical fire extinguishers, has named Wm. K. Rinelli director of its newly established customer relations department. Mr. Rinelli has been with the firm for 13 years.

Coombs Morart Chemist

HOLYOKE, Mass.—Morart Gravure Corp. has named C. E. Coombs as chemist in charge of its laboratory. Mr. Coombs was formerly associated with the Barber Asphalt Co. and the Cellophane Research Section of E. I. du-Pont de Nemours Co., Inc.

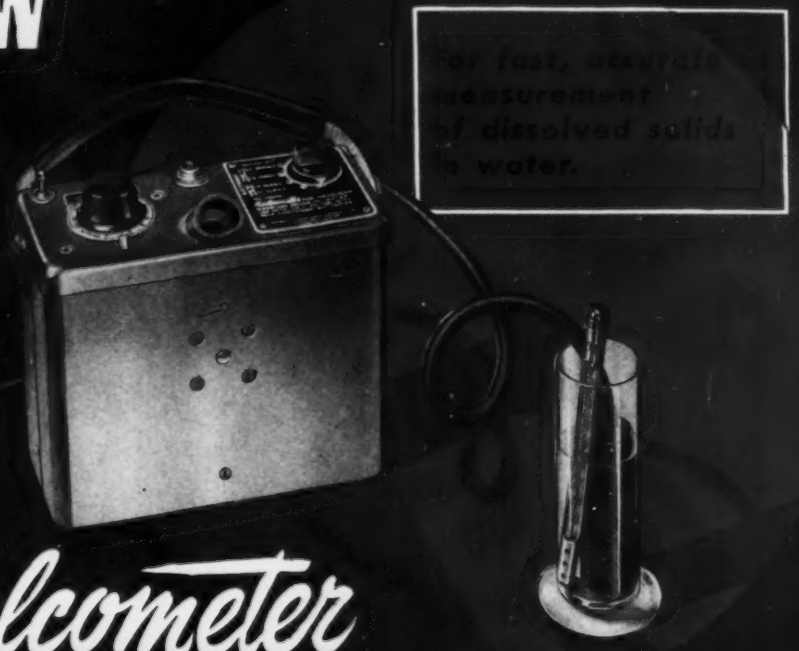
Manhattan Hose for Mines and Quarries

PHILADELPHIA — Development of Condor Homo-Flex Heavy Duty Air Hose for service in mining and quarry operations has been announced by the Manhattan Rubber Division of Raybestos-Manhattan, Inc., Passaic, N. J.

Williams Ferguson S.M.

CLEVELAND — Harry C. Williams has been appointed general sales manager of the H. K. Ferguson Co., industrial engineers and builders of Cleveland, New York and Houston.

NEW



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New Features . . .

- 4 *wide ranges,* for accurate measurement of dissolved solids from 0.4 parts per million to 1,000 grains per gallon.
- *Direct-reading*—no charts, scales or calculations.
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- *Compact* . . . measures only 3¾" x 8" x 8" overall.
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USING the new Nalcometer is literally as simple as a flick of the wrist! You can make accurate dissolved solids determinations faster than an assistant can fill test beakers!

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TRENDS

Office of the PAPER TRADE JOURNAL, Wednesday, July 7, 1948.

Production of paper and board sagged approximately 5 percent during June from May's record as a result of the closing down of several Eastern machines for repairs and replacements, and the temporary shut-down of three mills on the west coast by flood conditions. (One of these engaged in multi-wall bag production will not reopen as a result of destruction.)

Up to the pre-holiday closing for cleanup, inventory and vacations, mills generally were operating at capacity, some maintaining the 24-hour day, 7-day work week. Exception to this is in the fine paper field where the average run is reported as four days, with others at three, some at five, the result of slackened demand for rag-content and the high price of market pulp, particularly that from overseas.

Supply of most varieties is reported as good, although the gap between supply and demand is not completely closed. Production of *book* is reported to be 20 percent ahead of last year and yet inadequate to the pressing demand of publishers. Explanation is offered that the steadily increasing demand does not permit inventories, depleted during wartime, to be rebuilt. No. 4 sulphite bond also is generally reported short, with what limited stocks available likely to be diverted for Government paper work for the Draft. Kraft wrapping and toilet tissues in most sections are inadequate to demand with no early easing seen. Predictions that early relief for sanitary tissue shortage would come through heavier facial tissue types show no sign of vindication. On the contrary, increasing demand heightens the shortage. Newsprint shortage has become less acute. The U. S. Dept. of Commerce reports only 2 percent of the weekly papers with an insufficient supply for 1948. Field offices of the Department found uncoated book and cheap sulphite short in the New England area in good supply.

"Inventories in the hands of merchants throughout the country have been increasing and at this time are reported as sufficient to heavy," the Industry Survey states. "Inventories held by printers in the East and in the Middle West are reported overlarge, which has resulted in a curtailment of their orders for paper over the last two months. Retail resistance to current prices and quality of products continues, and merchants in view of this are reluctant to accumulate large inventories. Stocks are being watched closely and odd lots, poor qualities and slow-moving lines are being moved out.

General reappearance of printed pricelists indicates the stability of prices of most grades of paper during the last several months. Practically no change is reported. Reports from the Commerce Department Field Offices indicate that in the New England and Midwest regions there has been some price cutting on items which are in free supply. From the South, the spread between manufacturers' prices and gray market prices has narrowed during the past few weeks, it is reported, and although kraft papers and bags are slightly more plentiful than a year ago, the prevailing prices are too high to permit wholesale buying by cautious retailers. The same may be said of the New York area where gray market

prices of kraft wrapping have dropped considerably in the past few weeks. Advance in prices of toilet tissue by one major manufacturer were reported by PAPER TRADE JOURNAL, issue of June 24.

Pulpwood

Concern of Lake States mills over the potential curtailment of pulpwood imports from Ontario has been largely allayed as a result of conversations between mill executives and Ontario authorities, in the opinion of the Dept. of Commerce. "There is, however, continued interest on the part of the Lake States integrated plants and those of other regions in the pulp timber of the White River National Forest of Colorado and the forests of eastern Montana. In the National Forest of Colorado, the availability for sale of 200,000 to 350,000 cords of insect-killed spruce accessible to, or in areas tributary to, main hauling roads has been recently announced by the U. S. Forest Service. The Forest Service also announces that sales can be made of some 100,000 cords annually of lodgepole pine from Eastern Montana. Delivery of the pine timber, however, would be contingent upon an investment in roads, and would be subject to the delay attendant upon cruising and sales preparation. In comparison with the maximum total of 350,000 cords available from the foregoing, at least during the first year of operations, the Lake States mills in 1947 received nearly 750,000 cords of pulpwood from Canada.

A definite turn for the better in the critical pulpwood supply in the south is reported by the AP&PA's monthly pulpwood report. Receipts for May reached a record high of 880,000 cords, month-end inventories climbed to 555,000 cords, more than double inventories at the end of February of this year.

Total receipts for the first five months are shown as 1 percent ahead the comparative 1947 months with domestic receipts down 1 percent and imports increased 29 percent. Consumption was 6 percent above the comparable months of 1947, inventories 21 percent or approximately 780,000 cords ahead of the end of May of last year.

"Generally, throughout the four pulpwood-producing regions east of the Mississippi, pulpwood supplies were reported more than sufficient for mill capacity. The Lake States mills report tremendous quantities of wood available, both from domestic and Canadian sources, deliveries during May and June being the largest ever experienced. The Appalachian region also reports increased receipts of wood, with special mention of substantial increases in supplies of peeled wood and in the quality of the wood," the AP&PA reports.

Index of general business activity for the week ended June 26 sloped to 149.7 from 149.2 in the preceding week, compared with 140.7 in the corresponding week of 1947.

Index of paperboard production rose to 184.6 from 183.0 in the preceding week, compared with 174.2 for the corresponding week of 1947.

Comparative indexes for paper and paper board production as reported by AP&PA are shown below:

	June 26	June 19	June 28	June 29*	June 30
Paper* ...	99.5	95.0	103.7	105.5	88.8
Paperboard	97.0	97.0	102.0	98.0	96.0

*Tonnage production was 8.7 percent greater than last year's, although because of a 13.3 percent increase in 1948 capacity this year's production ratio is lower.

May Paper Production At Near Record Level

The second highest month in paper and paperboard production was attained in May with a production of 1,911,000 tons, surpassed only by October production last year of 1,930,000 tons. Daily average production for May was 73,498 tons, as against daily average production in October of last year of 71,468 tons, therefore had May as many working days as October, a new production high would have been attained. Based on the first five months, 1948 production is being maintained at an annual rate of slightly over 22 million tons, according to the May issue of the Monthly Statistical Summary of the American Paper & Pulp Ass'n., just released.

The May Summary gives an analysis of the market wood pulp inventories by grades at pulp, paper and paper-

(Continued on page 32)

BARRELL'S

PAPER ANNUAL

1948-1949

WILLIAM L. BARRELL COMPANY
LAWRENCE, MASSACHUSETTS

VOL. VII

1948 - 1949

CONTENTS

Directory of Officials of 34 Paper Industry Associations and other features.

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IMPORTS

Week Ending July 3

NEW YORK

Newsprint

Gilman Paper Co., Stockholm, Gothenburg, 143 rolls.
N. Y. Sun., Stuart Prince, Cornerbrook, 583 rolls.
Gilman Paper Co., Stuart Prince, Cornerbrook, 226 rolls.
N. Y. World Telegram, Stuart Prince, Cornerbrook, 1023 rolls.
Clinton Paper Corp., Stuart Prince, Cornerbrook, 866 rolls.
H. G. Craig Co., Kermic, Donnacona, 374 rolls.
R. A. Olsen, G.T.D., Donnacona, 365 rolls.
H. G. Craig Co., G.D.D., Donnacona, 341 rolls.
R. A. Olsen, A.C.D., Donnacona, 376 rolls.
News Syndicate Co., Colabee, Baie Comeau, 7,830 rolls.
Malmar Paper Co., Pres. Monroe, Genoa, 209 rolls.

Tracing Cloth

Keuffel & Esser Co., American Packer, Manchester, 3 cs. (cotton).
Defiance Sales Corp., Britannic, Liverpool, 8 cs.

Tissue Paper

B. F. Drakenfeld & Co., American Packer, Liverpool, 22 cs.
American Express Co., Britannic, Liverpool, 1 cs.
America Geotrade Inc., Talamanca, Pto Barrios, 10 bdls.

Serviettes

(———), Britannic, Liverpool, 6 cs. (crepe paper).
(———), Fort Miami, London, 8 crates (crepe paper).

Gummed Paper

B. F. Drakenfeld & Co., Britannic, Liverpool, 50 cs.

Wrapping Paper

Bank of The Manhattan Co., Stockholm, Gothenburg, 84 rolls.
Manufacturers Trust Co., Stockholm, Gothenburg, 61 bls., 106 rolls.

Napkins

H. W. Robinson Co., Bolivia, Copenhagen, 6 ctns. (paper).
H. W. Robinson Co., Fort Miami, London, 4 cs. (napkins & towels).

Photo Paper

J. J. Gavin Co., Fort Miami, London, 4 cs.
American Express Co., Fort Miami, London, 88 drums (base).

Drawing Paper

H. Reeve Angel & Co., Inc., Fort Miami, London, 3 cs.

Filter Paper

H. Reeve Angel & Co., Inc., Fort Miami, London, 29 cs.

Printing Paper

International Expediters Inc., Fort Miami, London, 9 cs.

Miscellaneous Paper

Dadourian Export Corp., Minnesotan, Saipan, 1,803 pkgs.
Chemical National Bank Trust Co., Stockholm, Gothenburg, 91 rolls.
Stevens Nelson Paper Corp., Oregon, Havre, 1 cs.
Lansen Naeve Corp., Oregon, Havre, 18 cs.

Rags, Baggings, Etc.

American Express Co., American Packer, Manchester, 26 bls. wool rags.
W. Burnet & Son, American Packer, Manchester, 27 bls. wool rags.
Chase National Bank, American Packer, Manchester, 24 bls. wool rags.
(———), Britannic, Liverpool, 2 bls. wool rags, 11 bls. wool thread waste.
American Express Co., Britannic Liverpool, 19 bls. wool rags, 11 bls. wool hosiery rags.
1st National Bank, Chicago, Christen Smith, Leningrad, 455 bls. cotton waste, 1,336 bls. cotton linters.
Tradesmans National Bank, Philadelphia, Christen Smith, Leningrad, 10,476 bls. cotton linters.
E. J. Keller Co. Inc., Pres. Monroe, Naples, 63 bls. rags.
J. P. Fleisig, Pres. Monroe, Naples, 141 bls. old dark cotton rags.
New England Waste Co., Pres. Monroe, Genoa, 92 bls. cotton waste.
State Street Trust Co., Pres. Monroe, Genoa, 207 bls. old jute bagging.
Castle & Overton, Inc., American Press, Glasgow, 125 bls. jute thread waste.
Manufacturers Trust Co., Exceller, Genoa, 70 bls. old waste bagging.
Amtorg Trading Co., Rena, Leningrad, 918 bls. cotton waste.
1st National Bank, Chicago, Rena, Leningrad, 1,645 bls. cotton linters, 3,700 bls. cotton waste.
Royal Manufacturing Co., Afoundria, Antwerp, 53 bls. cotton waste.
Midwest Waste Material Co., Afoundria, Antwerp, 294 bls. waste cuttings.
E. J. Keller Co. Inc., Gainesville Victory, Antwerp, 151 bls. old bagging.
A. De Vries Corp., Gainesville Victory, Antwerp, 62 bls. paperstock.
New England Waste Co., Bowrio, Santos, 209 bls. old waste bagging.
J. Eisenberg & Son, Agwidale, Havana, 56 bls. cotton rags.
Atlas Waste Manufacturing Co., Agwidale, Havana, 10 bls. cotton waste.
(———), Exchequer, Genoa, 142 bls. hemp rags.
Williamson Northrup, Mormacoak, Santos, 89 bls. cotton waste.
Railway Supply & Manufacturing Co., Mormacoak, Santos, 69 bls. cotton waste.
National City Bank, Hellenic Victory, Alexandria, 73 bls. scrap bagging.
Irving Trust Co., Hellenic Victory, Alexandria, 51 bls. old bagging pieces.
(———), Hellenio Victory, Istanbul, 277 bls. old bagging.

Old Rope

International Purchasing Co., Bolivia, Copenhagen, 241 bls.

China Clay

United Clay Mines Corp., Gloucester City, Bristol, 52 tons, 12 cwt.

Gluestock

H. Remis, Jean, Trujillo City, 348 pkgs.

Casein

The Borden Co. Chemical Division, Argentina, Buenos Aires, 900 bags (ground lactic).
Hercules Powder Co., Argentina, Buenos Aires, 2000 bags.
American Cyanamid Co., Argentina, Buenos Aires, 1500 bags.
Balfour Guthrie & Co., Argentina, Buenos Aires, 500 bags (ground lactic).
American Cyanamid Co., Villar, Buenos Aires, 1,100 bags (ground lactic).
American Cyanamid Co., Olga S., Buenos Aires, 500 bags.

Woodpulp

Cellulose Sales Co., Stockholm, Gothenburg, 425 bls. sulphite pulp.
Bulkley Dunton Pulp Co., Stockholm, Gothenburg, 1,270 bls. dry unbleached sulphite pulp.

PHILADELPHIA IMPORTS

Leigh Textile Co., American Press, Manchester, 86 bls. paperstock.
A. L. Diament Co., American Importer, Havre, 10 cs. wallpaper.

BALTIMORE IMPORTS

National City Bank, Villar, Buenos Aires, 2,000 bags ground lactic casein.

Cigarette Paper

JAPAN

The Japanese paper mills have the capacity to produce 26 million pounds of cigarette paper annually. Present production is only about 9,600,000 pounds annually. If sufficient fuel, power and chemicals were available, the mills probably would operate at full capacity, since the demand greatly exceeds the output.

SWEDEN

Since cigarette paper is not produced in Sweden, consumption is equivalent to imports. Consumption increased to about 125 metric tons in 1947 from 85 tons in 1945, and about 80 tons in an average prewar year. Imports of booklets of cigarette paper were 60,000 booklets in 1947, compared with 600,000 in a normal prewar year. Finland furnished practically all of the paper in 1947, whereas France was the chief source of the booklets. The Swedish Tobacco Monopoly, which imports cigarette paper for its own production of cigarettes, is the only importer of this paper and also cigarette booklets. The Monopoly distributes the booklets through retail outlets. Since requirements of the paper can be obtained from soft-currency areas, it is expected that Finland will continue to be the chief source.

DOMINICAN REPUBLIC

Production of cigarettes in the Dominican Republic totaled over 611 million units in 1946, compared with 423 million units in 1944. There is only one cigarette factory in that country, and the requirements of cigarette paper are estimated at a maximum of 100,000 pounds annually. Cigarette production appears to be increasing. The outlook for the sale of U. S. paper to this market is very good. The only cigarette factory is reported to prefer the U. S. product.

PORTUGAL

Consumption of cigarette paper is assumed to be equivalent to imports since there is no production and exports are nil or negligible. Spain and France were the chief sources during the 7-year period ended 1946. Other important sources in some years during the period were Germany, Finland, Italy, United Kingdom and the U. S. The U. S. furnished 8 tons of spools in 1941 and 38 tons in 1944. Booklet supplied by the U. S. amounted to 15 tons in 1945 and 2 tons in 1946.

The Portuguese market demands a thin, transparent type of cigarette paper. Outlook for increased exports from the U. S. to Portugal appear to be fairly favorable unless such exports are unduly affected by recent controls over all imports into Portugal.

* Source U. S. Dept. of Commerce

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PRICES

Quotations indicate trends in an open market. At the moment they can be of little more value. While some volume business still is done under contract at the figures shown, fluctuations are too varied and frequent to permit prices to be interpreted as representing a wholly stabilized market.

NEW YORK

Paper

(Delivered New York)

Standard News, per ton—
- Rolls, contract ..... $93.00/$96.00
- Sheets 108.00/109.00

Kraft—per cwt.—Carload Quantities Zone A Deld. 40 lb. base wgt.
- Superstandard Wrapping ..... $9.00/ —
- No. 1 Wrapping 7.25/ 8.00
- Standard Wrapping ..... 6.50/ —
- Standard Bag ..... 6.50/ —

Tissues—Per Ream 24x36 (480) 11 lbs. Zone 1.
- Wh. No. 1 Frd. ..... $1.84/$2.00
- Wh. No. 1 M. G. 1.94/ 2.00
- Wh. No. 1½ ..... 1.60/ —
- Wh. No. 2 ..... 1.75/ —
- Kraft Anti-Tar ..... 1.65/ —
- Kraft Unbl. ..... 1.85/ —
- Manila No. 2 ..... 1.62/ —
- Shred. Wh. No. 1 cwt. 1.10/ 1.50

Toilet—Per Case of 100 rolls—1 M Sheets.
- Unbleached ..... $8.50/$10.00
- Bleached 8.50/ 10.00

Paper Towels—Per Case of 3750—Zone 1.
- Wh. Jr. M'tif'd 9¼x9½ $5.15
- Br. Sr. M'tif'd 10x12 ..... 3.60
- Br. Jr. M'tif'd 9½x9¾ 3.10
- Br. Jr. Sgl. fold 10x10¾ 3.15

Manila—per cwt.—C-1 f.a.
- No. 1 Jute Tag ..... $14.50/ —
- Reg. Jute Manila ..... 13.25/$15.50
- No. 1 Manila ..... 9.75/ —
- 5 lb. Manila 10.75/ 11.25

Boards, per ton—
- Plain News ..... $92.50/ —
- Filled News ..... 94.00/ —
- Plain Chip ..... 90.00/ —
- Sgl. Mla. L-d. Chip* 100.00/102.50
- White Pat. coated* ..... 120.00/ —
- Kraft Liners 42 lb. ..... 100.00/ —
- Kraft Corr. .009 ..... 105.00/ —
- Binders Boards ..... 126.00/ —

* Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—

White, 16 lb.

Bonds, per cwt.

	Carton	4 C't'n	Ton
100% Rag Ext. No. 1	$55.00	$50.80	$48.70
100% Rag	48.25	44.55	42.70
75% Rag	37.50	34.55	33.10
50% Rag	32.25	29.40	28.25
25% Rag	28.75	26.15	25.10

Ledgers, per cwt.

100% Rag Ext. No. 1	$55.00	$50.80	$48.70
100% Rag	48.25	44.55	42.70
75% Rag	37.50	34.55	33.10
50% Rag	32.25	29.40	28.25
25% Rag	28.75	26.15	25.10

Sulphite Bonds and Ledgers—

White, 16 lbs.

Bonds, per cwt.

No. 1	$21.25	$19.25	$18.50
No. 2	20.25	18.30	17.55
No. 4	19.25	17.55	16.85

Ledgers, per cwt.

No. 1	$21.75	$19.65	$18.85
No. 2	20.75	18.75	18.05
No. 4	20.00	18.10	17.35

Free Sheet Book Papers—

White, Cased Paper

	(Per cwt.) Case	Ton
No. 1 Glossy Coated	$20.40	$19.50
No. 2 Glossy Coated	19.15	18.30
No. 3 Glossy Coated	18.40	17.60
No. 1 Antique (Watermarked)	15.90	15.15
No. 2 Offset	15.15 to 17.90	14.60 to 17.10
A Grade E. F.	14.90	14.25
A Grade S. & S. C.	15.40	14.65
B Grade E. F.	13.90	13.30
B Grade S. C.	14.40	13.70

Wood Pulp

Domestic mill contract prices delivered with varying freight allowances.

	Per Short ADT
Groundwood	$80.00/$81.00
Unbleached Sulphite	174.00/ —
Bleached Sulphite	125.00/135.00
Bleached Soda	130.00/ —
Bleached Sulphate	175.00/185.00
Unbleached Sulphate Northern	125.00/155.00
Unbleached Sulphate Southern	130.00/145.00

Canadian Quotations

Prices delivered with varying freight allowances unless otherwise specified:

	Per Short ADT
Bleached Sulphate	160.00/185.00
Unbleached Sulphate	125.00/150.00
Unbleached Sulphite	125.00/126.00
Bleached Sulphite	125.00/135.00
Glassine Unbleached Sulphite (no freight allowance)	120.00/ —
Bleached Soda	130.00/ —
Groundwood	80.00/ 85.00
Sideruns Pulping News	80.00/ 90.00
Hardwood and Specialty Grades	Nominal

Swedish Quotations

On dock, Atlantic Ports

Bleached Kraft	185.00/ —
Bleached Sulphite	185.00/ —
Unbleached Sulphite	155.00/157.50
Unbleached Kraft	147.50/ —

Finnish Quotations

On dock, Atlantic Ports

	Per Short ADT
Bleached Sulphite	$187.50/ —
Unbleached Sulphite	155.00/157.00
Unbleached Sulphate	147.50/ —

New Domestic Cotton Cuttings

(F.o.b. Ship. Pt. Plus Dealer's Commission)

White Shirt	$11.50/$12.00
Unbleached Muslin	12.00/ 12.50
Light Silesias	9.00/ 9.25
White Back Blue Overalls	9.00/ 9.50
Blue Overalls	8.00/ 8.25
Fancy Shirt	6.00/ 6.25
Light Percales	8.50/ 8.75
Light Prints	7.50/ 7.75
No. 1 Washables	5.00/ 5.25
Bleachable Khaki	7.50/ 8.00
Unbleachable Khaki	6.50/ 7.00
Cottonades	5.50/ 5.75

Old Domestic Cotton Rags

(F.o.b. Ship. Pt. Plus Dealer's Commission)

	Per 100 lbs.
No. 1 Whites Repacked	$5.50/ $6.00
No. 1 Whites Miscellaneous	4.50/ 5.00
No. 2 Whites Repacked	3.50/ 3.75
No. 2 Whites Miscellaneous	3.00/ 3.50
Blue Overalls	3.75/ 4.00
Thirds and Blues Repacked	3.25/ 3.50
No. 1 Roofing Rags	1.70/ 1.80
No. 2 Roofing Rags	1.60/ 1.70
No. 3 Jute Bagging	1.50/ 1.60
No. 4 Brussels and hard back carpets	1.50/ 1.60
No. 5A Roofing Rags	1.50/ 1.60

New Foreign Cotton Cuttings

(Prices to Mill, F.o.b. Dock, N. Y.)

	Per 100 lbs.
New Dark Cuttings	$5.50/ $5.75
New Mixed Cuttings	6.25/ 6.50
Light Silesias	9.25/ 9.50
Light Flannelettes	9.25/ 9.50
New White Cuttings	12.00/ 13.00
New Unbleached Cuttings	12.25/ 13.00
Fancy Shirt Cuttings	6.50/ 7.00
Light Prints	7.75/ 8.00
Bleachable Khaki, No. 1	7.00/ 7.50
Unbl. Khaki, No. 1	6.25/ 6.75

Old Foreign Rags

(Prices to Mill, F.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Linens	nominal
No. 2 White Linens	nominal
No. 3 White Linens	nominal
No. 4 White Linens	nominal
No. 1 White Cottons	8.00/ 10.00
No. 2 White Cottons	7.00/ 8.00
No. 3 White Cottons	6.00/ 6.50
No. 4 White Cottons	4.00/ 4.50
Extra Light Prints	6.50/ 7.00
Old Light Prints	4.50/ 5.00
Med. Light Prints	4.00/ 4.50
Dutch Blue Cottons	5.25/ 5.50
Checks and Blues	4.00/ 4.25
Linsey Garments	2.35/ 2.50
Dark Cottons, European	2.30/ 2.35
Dark Cottons, Egyptian	3.25/ 3.50
Old Shopperies	2.20/ 2.30
New Shopperies	2.25/ 2.30

Bagging

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny, No. 1	$6.75/ $7.25
Domestic Gunny, No. 1	6.75/ 7.25
Heavy Wool Tares	6.25/ 6.50
No. 1 Scrap Baggings	5.50/ 5.75
Roofing Bagging	1.50/ 1.75
Foreign Manila Rope	6.00/ 6.75
Domestic Manila Rope	6.50/ 6.75
Jute Strings	5.00/ 5.25
No. 1 Sisal Strings	5.25/ 5.50
Mixed Strings	1.75/ 2.50

Waste Paper

Base Prices to Mills for Average Packing—F.o.b. New York, Baled

	(Per Ton)
No. 1 Hd. Wh. Env. Cts, one cut	$155.00/$165.00
No. 1 Hard White Envelope Cuts	145.00/ 155.00
No. 1 Hd. Wh. Shavings, unruled	140.00/ 150.00
No. 1 Hd. Wh. Shavings ruled	110.00/ 130.00
Soft White Shavings, one cut	140.00/ 150.00
No. 1 Soft White Shavings	125.00/ 135.00
Soft White Shavings, Misc.	115.00/ 125.00
No. 1 Fly Leaf Shavings	45.00/ —
No. 1 Gd'wd Fly Leaf Shavings	35.00/ —
No. 1 Heavy Books & Magazines	25.00/ 26.00
Mixed Books	15.00/ 18.00
No. 1 White Ledger	75.00/ 80.00
Col. Ledger	55.00/ 60.00
Manila Tab. Cards	95.00/ 100.00
New Man. Env. Cuttings, one cut	100.00/ 110.00
New Manila Envelope Cuttings	65.00/ 75.00
Extra Manilas	25.00/ 30.00
Mxd Kraft, Env. & Rag Cuttings	75.00/ 85.00
Kraft Envelope Cuttings	100.00/ 110.00
Triple Sorted, No. 1 Brown Soft Kraft	65.00/ 75.00
New Kraft Corrugated Cuttings	70.00/ 75.00
No. 1 Assorted Old Kraft	50.00/ 55.00
New Jute Corrugated Cuttings	27.00/ —
Old 100% Kraft Corr. Containers	35.00/ 40.00
Old Corrugated	23.00/ 25.00
No. 1 News	11.00/ 12.00
No. 1 Mixed Papers	9.00/ 10.00
Box Board Cuttings	8.00/ 9.00
White Blank News	75.00/ 85.00
Overissue News	16.00/ 17.00
Mill Wrappers	22.00/ 24.00

Twines

All Prices Nominal, F.o.b. Mill

(Soft Fiber)	
Coarse Polished—India	.34½/ .35¾
Fine Polished Fine India	.41¼/ .45
Unpolished—Paper Makers	.31 / .33½
—Tube Rope	.29¾/ .32¼
Wrapping	.32¾/ .36½
Cotton	.63¼/ .66¾
(Hard Fiber)	
Mex. Sisal	.21 / .27
Manila (Reprocessed)	.30 / .32
(American Hemp)	
Polished Hemp	.36¾/ .60
Unpolished	.32¼/ .54

PHILADELPHIA

Domestic Rags (New)

(F.o.b. Eastern Shipping Point)

Shirt Cuttings—
- New White No. 1 ..... .10½/ .11
- New White No. 2 ..... nominal
- Light Silesias ..... .07½/ .08
- Black Silesias, soft ..... .06 / .06½
- New Unbleached ..... .10½/ .11¼
- Washable Prints ..... .06½/ .07
- Washable No. 1 ..... .05 / .05½

Blue Overall ..... .07½/ .08

Cottons—According to grade—
- Washable Shredding ..... .03 / .03½
- Fancy Percales ..... .06¾/ .07¼
- New Black Soft ..... nominal

Khaki Cuttings—
- Unbleachable Cotton Cuttings ..... .05¾/ .06½
- Bleachable Cotton Cuttings ..... .06½/ .07
- Men's Corduroy ..... .05½/ .06
- Ladies' Corduroy ..... .05 / .05½
- Cottonades ..... .05½/ .06

Domestic Rags (Old)

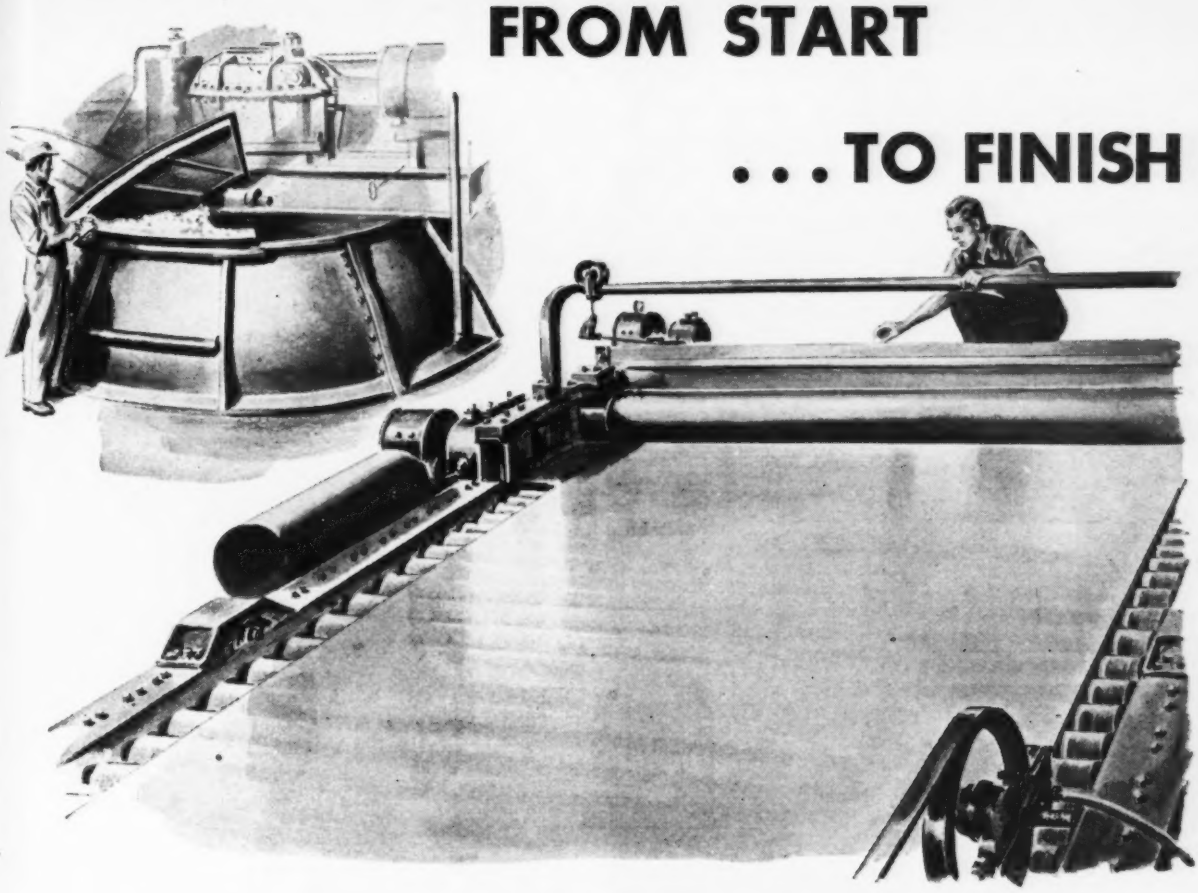
(F.o.b. Eastern Shipping Point)

White No. 1—Repacked	4.50 / 5.00
Mixed White	4.00 / 4.25
White No. 2—Repacked	3.50 / 3.75
Thirds and Blues—	
Miscellaneous	2.50 / 2.75
Repacked	3.00 / 3.25
Roofing Stock—	
Foreign No. 1	nominal
Domestic No. 1	1.65 / 1.70
Domestic No. 2	1.55 / 1.60
Roofing Bagging	1.45 / 1.50
Old Manila Rope	5.75 / 6.00

(Continued on page 30)

FROM START

. . . TO FINISH



You get Better Slime Control in hot weather with Du Pont LIGNASAN®-X

FUNGICIDE AND BACTERICIDE

You can keep your system clean *all the way to the paper machine* . . . even in the hottest weather, when slime build-ups are most serious . . . with "Lignasan"-X.

Added to closed systems, this improved fungicide and bactericide enables you to maintain a slime-free operation with a minimum of make-up water. This is *especially* important in summer months, when water supplies are lowest.

Minimize shutdowns for washing the system by using "Lignasan"-X to eliminate slime in pipes, screens, chests and headboxes.

You'll get fewer slime rejects, too, because "Lignasan"-X helps to prevent smears, holes and breaks in the sheet caused by slime. "Lignasan"-X reduces the chance of sheets sticking to the press rolls.

LOW-COST . . . QUICK-ACTING

You can use "Lignasan"-X with greater economy. It is inexpensive. And only a few ounces per ton of fiber do the job in most cases. It goes right to work, too, because it is water-soluble for quick action. "Lignasan"-X can be added any place in the system to keep it free of slime.

Our Technical Service Representatives will be glad to show you the latest and most effective ways of using "Lignasan"-X in your paper-making operation. Write E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington 98, Delaware.

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LIGNASAN®-X

FUNGICIDE AND BACTERICIDE

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

PRICES CONTINUED FROM PAGE 28

Bagging
(F.o.b. Eastern Shipping Point)

Gunny No. 1—	
Foreign	nominal
Domestic	5.00 / 5.50
No. 1 Clean Bright—	
Sisal Strings	.04½/ .05
No. 2 Clean Bright—	
Sisal Strings	.03½/ .04
Sisal Jute	.02¼/ .03
Scrap—	
No. 1	5.00 / 5.50
No. 2	2.50 / 3.00

Old Papers
F.o.b. Phila. Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00/$115.00
No. 1 Hard White Shavings, unruled	100.00/ —
Soft White Shavings	80.00/ —
White Blank News	65.00/ 70.00
Soft White Shavings, One Cut	/ 80.00
No. 1 White Ledger	65.00/ 70.00
No. 1 Heavy Books & Magazines	20.00/ 22.00
Overissue Magazines	nominal
New Manila Envelope Cuttings	75.00/ —
No. 1 Assorted Old Kraft	35.00/ 40.00
No. 1 Mixed Paper	8.00/ 10.00
Box Board Cuttings	8.00/ 10.00
Kraft Corrugated Cuttings	75.00/ 80.00
Old Corrugated	20.00/ 24.00
Overissue News	13.00/ 15.00
No. 1 News	10.00/ 12.00

BOSTON

Old Papers
F.o.b. Phila. Mill Prices, Baled

No. 1 Hard White Shavings, unruled	$6.25 /$6.75
No. 1 Hard White Shavings, ruled	6.00 / 6.50
Soft White Shavings, Misc.	6.00 / 6.25
No. 1 Fly Leaf Shavings	— / —
No. 2 Fly Leaf Shavings	4.25 / —
No. 1 Grdwd. Fly Leaf Shvgs.	1.75 / 2.00
No. 2 Groundwood Fly Leaf Shavings	1.50 / 1.75
Mixed Colored Shavings	2.00 / 2.25
New Manila Env. Cuts, one cut	4.50/ / 4.75
Hard White Envelope Cuts, one cut	7.00 / —
Triple S'ted No. 1 Br. Soft Kraft	3.75 / 4.00
Mixed Kraft Env. & Bag Cuttings	4.00 / 4.25
Kraft Envelope Cuttings	5.00 / 5.50
No. 1 Heavy Books & Magazines	1.75 / —
New Manila Env. Cutt'gs, one cut	—/ /
New Manila Envelope Cuttings	4.00 / 4.25
White Tabulating Cards	5.00 / —
Groundwood Tabulating Cards	1.50 / 1.75
White Blank News	2.25 / 2.50
No. 1 Assorted Old Kraft	3.50 / 4.00
No. 1 Mixed Paper	.47½/ —
Overissue News	.90 / 1.00
No. 1 News	.55 / .60
Box Board Cuttings	.60 / .70
New Corrugated Cuttings, Kraft.	2.75 / 3.00
Old Kraft Corrugated Containers	2.00 / 2.25
Old Corrugated Containers	— / 1.10
Jute Corrugated Cuttings	1.07½/ —
Paper Strings	2.00 / 2.25

Bagging
(F.o.b. Boston)

Gunny Bagging—	
Foreign	— / 4.75
Domestic	6.25 / 6.50
Sisal Rope No. 1	6.25 / —
Sisal Rope, No. 2	5.50 / —
Mixed Rope	3.00 / —
Mixed Strings	1.60 / —
Transmission Rope—	
Foreign	nominal
Domestic	3.00 / 3.50
Manila Rope—	
Foreign	nominal
Domestic	6.25 / 6.50
Jute Carpet Threads	6.00 / —
Bleachery Burlap	— / 7.00
Scrap Burlap—	
Foreign	6.00 / 6.25
Domestic	6.00 / 6.25
South America	6.00 / 6.25
Wool Tares	
Foreign	6.25 / —
Domestic	6.25 / —
Austr. Wool Pouches	7.50 / —
New Zealand Wool Pouches	7.50 / —
New Burlap Cuttings	6.50 / —
Heavy Baling Bagging	5.25 / 5.75
Paper Mill Bagging	5.50 / 5.75
No. 1 Roofing Bagging	2.25 / 2.50

Domestic Rags (New)
(F.o.b. Boston)

Shirt Cuttings—	
New Light Prints	.07½/ —
Fancy Percales	.08 / —
New White No. 1	.11 / .11¾
New Light Flannelettes	.08 / .08½
Canton Flannels, Bleached	.10 / .11
Underwear Cutters, Bleached	.11½/ —
Underwear Cutters, Unbleached	.11 / .12
Silesias No. 1	.08 / .08½
New Black Silestas	.04½/ —
Red Cotton Cuttings	.05 / —
Blue Overalls	— / .08½
Soft Unbleached	.11 / .12
B'ue Cheviots	.08½/ .09
Fancy	.06 / —
Washable	.06 / —
Khaki Cuttings	.06½/ .07½
Corduroy	.03½/ —
Men's Corduroy	.04 / —
Khaki Canvas	— / .06
B. V. D. Cuttings	.11½/ —

Domestic Rags (Old)
F.o.b. Boston)

White No. 1—	
Repacked	5.00 / 5.50
Miscellaneous	4.50 / 5.00
White No. 2—	
Miscellaneous	2.65 / —
Twos and Blues, Repacked	2.75 / —
Old Blue Overalls	4.00 / 4.50
Thirds and B'ues, Repacked	2.20 / —
Miscellaneous	1.80 / —
Black Stockings	3.50 / 4.00
Roofing Stock—	
No. 1	1.70 / —
No. 2	1.60 / —
No. 3	1.50 / —
No. 4	1.50 / —
No. 5, Quality A.	1.60 / —
Quality B.	1.50 / —
Quality C.	.95 / —
Old Manila Rope	6.00 / —

Foreign Rags
(F.o.b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper
(F.o.b. Chicago) Mill Prices, Baled

Shavings—		
No. 1 Hard White Envelope cuts, one cut	$150.00/	—
No. 1 Hard White Shavings, unruled	140 00/	—
No. 1 Soft White Shavings	120.00/	—
No. 1 White Ledger	85.00/	—
No. 1 Heavy Books & Magazines	35.00/	—
White Blank News	80 00/	85.00
Mixed Kraft Env. & Bag Cuttings	90.00/	110.00
No. 1 Assorted Old Kraft	35.00/	—
Overissue News	24.00/	—
No. 1 News	11.00/	—
No. 1 Mixed Paper	11.00/	—
Old Corrugated	23 00/	—
Mill Wrappers	17.00/	—

MARKETS

Blanc Fixe
Prices firm. Market unchanged. Demand strong. Pulp is currently quoted at $85 in bags, car lots at works, 6 cents per pound, l.c.l., deld.; by-product $75 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

Bleaching Powder
Supply adequate. Delivery good. Prices range from $3.75 to $4 per 100 pound drums, l.c.l. works.

Casein
Market unchanged. Prices steady. Demand registers seasonal mill shutdowns. Current prices on processed acid precipitated casein at 31 to 33 cents per pound for domestic grades and 28 to 29½ cents for imported grades, f.o.b. shipping point.

Caustic Soda
Demand heavy. Supply still shortened by new strike. Solid caustic is reported at $3.10 per cwt.; flaked and ground is quoted at $3.50 per cwt. in 400 pound drums, $4 to $4.25 per cwt. in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.50 per cwt.; liquid 73 percent in tank cars at $2.60 per cwt., at works.

China Clay
Supply excellent. Demand steady. Domestic filled clay is $9 to $11.50 per ton, car lots; coating clay is $14 to $22. Imported clay quotation, short tons, $16 to $35, export warehouse.

Chlorine
Supply still disturbed by new major strike. Not likely to improve in view of heavy summer demand. Currently quoted at $2.40 per cwt. in single unit tank cars; at $2.70 to $3.90 per cwt., in multi-unit tank cars, f.o.b., works.

Rosin
Supply good. Domestic buying shows price resistance. Supplies moving to western Europe. Gum rosin in drums per 100 pounds net in car lots, f.o.b. Savannah; B, $6.50; G, H, I, K, $7.40. Wood rosin per 100 pounds net, car lots, f.o.b. Savannah; B, $5.00; FF, $6.50.

Rosin Size
Seventy percent gum and pale wood grades. Supply ample. Demand good. Tank cars, $6.15 to $6.25, f.o.b. southern shipping point.

Salt Cake
Demand continues ahead of supply with slight improvement in shipments. Production under contract. Domestic salt cake is quoted at $25 to $28.

Soda Ash
Supply generally easier, though deliveries behind schedule. Current prices, car lots, per 100 pounds: in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.

Sodium Bicarbonate
Strong demand with supply good. Reported as $1.95 per cwt. paper bags, carload lots.

Starch
Prices unchanged. Supply good. Demand eased by mill shutdowns. Pearl grade quoted at $7.00 per 100 pounds; powdered starch at $7.12 per 100 pounds; car lots, New York.

Sulphate of Alumina
Prices unchanged. Supply steady. The commercial grades are quoted at from $1.30 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

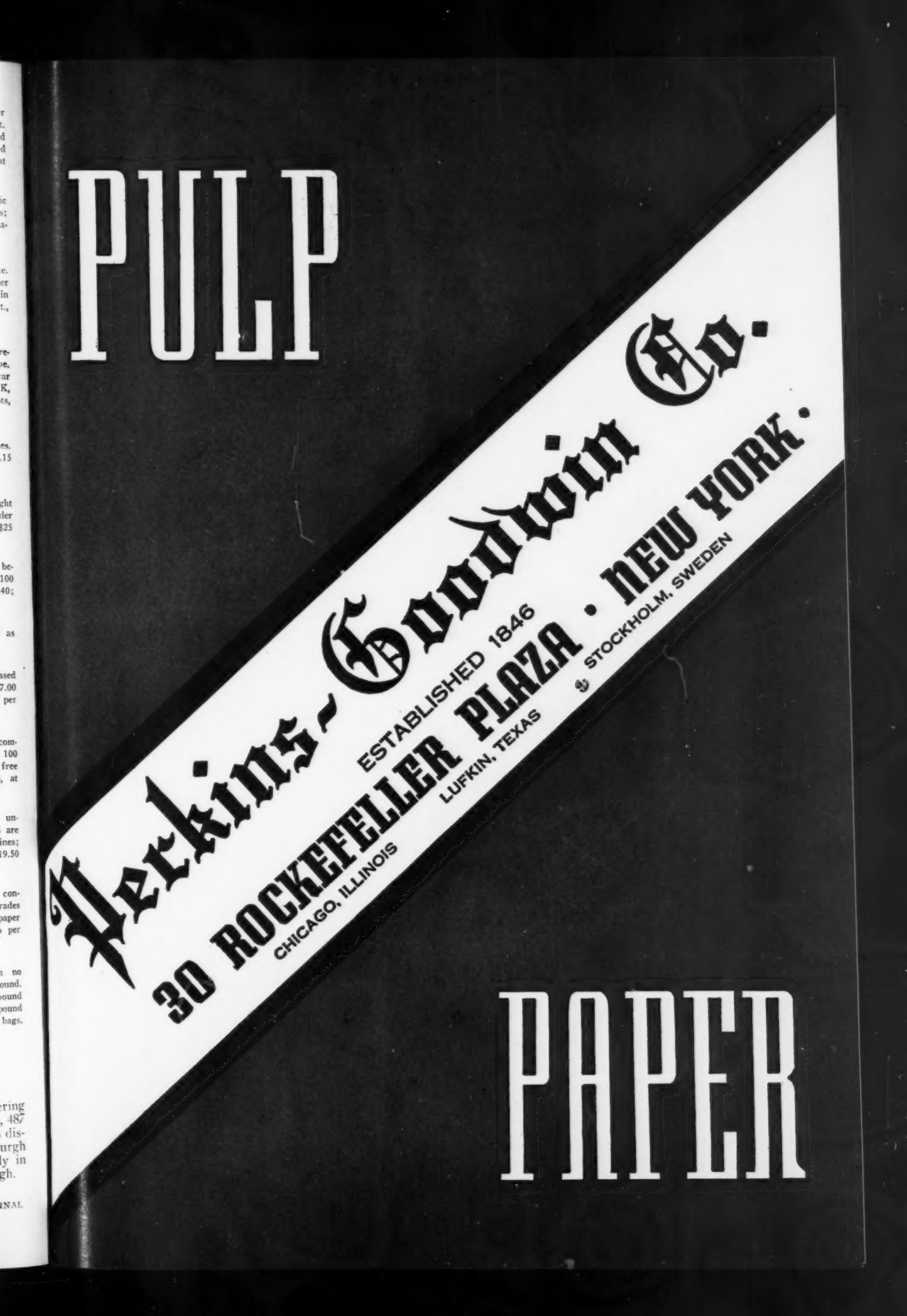
Sulphur
Production shows heavy gain. Prices unchanged. Supplies ample. Annual contracts are quoted at $16 to $18 per long ton, f.o.b. mines; the price f.o.b. at Gulf ports is $17.50 to $19.50 per long ton.

Talc
No change in domestic market. Demand continues far in excess of supply. Domestic grades are currently quoted at $23 per ton in paper sacks, f.o.b. mills; Canadian at $35 and up per ton. All prices in car lots.

Titanium Dioxide
Demand continues extremely tight with no early improvement seen. Prices rise ½c pound. Shipments on allocation. Anastase 18c pound carload lots, 18½-19c l.c.l., rutile, 20c pound carload lots, 20½-21c l.c.l; 50-pound bags. f.o.b. plant, minimum freight allowance.

Northwest Names Stoughton Pittsburgh District Manager

CHICAGO — Northwest Engineering Co., has appointed F. A. Stoughton, 487 McCully St., Pittsburgh 16, Pa., as district sales manager in the Pittsburgh area. Mr. Stoughton was formerly in the equipment business in Pittsburgh.


PULP
Perkins-Goodwin Co.
ESTABLISHED 1846
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CHICAGO, ILLINOIS
LUFKIN, TEXAS
STOCKHOLM, SWEDEN
PAPER

FINANCE

Dividends Declared

SAN FRANCISCO — Fibreboard Products, Inc., declared a regular quarterly dividend of $1.50 on the preferred stock, payable August 2 to holders of record July 16.

EVERETT, Wash. — Soundview Pulp Co. declared a regular quarterly dividend of 75 cents on common stock payable Aug. 31 to shareholders of record Aug. 14.

CHICAGO — Munising Paper Co. declared a regular quarterly dividend of 25 cents on preferred stock payable Aug. 2 to holders of record July 20.

Minas Basin Pulp $300,000 Bond Issue

HALIFAX, N. S.—Minas Basin Pulp & Power Co., Hantsport, N. S., expects to spend around $300,000 this year on capital account and to sell $300,000 of 4½ percent 30-year first mortgage bonds to finance the expenditure.

The company's intention is to add dryers to its board mill to increase capacity from about 20 tons a day to 40 tons. It is also erecting a two-story building to be used as a beater room and storage for old papers, pulp and finished paper. The company, further, is erecting a power plant of 250 h.p., building a storehouse for mill supplies and another building for a welding shop. Under the present setup, the paper mill has a daily capacity of approximately 18 tons of sheathing paper. Another calendar stack costing about $9,000 is now on order which will enable the mill to produce a high finish board, capable of being utilized in the manufacture of shipping cartons, etc. Additions to plant and machinery during 1947, totaled $209,854.

Mersey Paper Co. Floats $1,200,000 Bond Issue

TORONTO, Ont. — Mersey Paper Co. first mortgage bonds, Series B, in the amount of $1,200,000, are being sold, according to the recent annual report, which stated that the company had contracted for the purchase of additional free-hold timber lands at a cost of approximately $2,500,000. The bonds are being sold through Royal Securities Corp. and are to mature $200,000 a year from July 2, 1952 to 1957.

The pamphlet report for 1947, just released, shows gross profit up 43.7 percent at $3,473,293, while net profit increased 82 percent at $1,557,094, against $853,040 in the previous year. Net was equal to $43 a share on 36,219 new 4½ percent preferred shares of $100 par value, compared with $17.06 a share on 50,000 shares of 5½ percent the previous year. Net left available for the 198,292 new common shares of no par value was equal to $7.03, against $3.85 on 150,000 shares of no par value outstanding a year ago.

Balance sheet figures show current assets of $4,833,673 and current liabilities of $1,774,474.

Peak Levels Reached In Output Gains

Domestic production of practically all grades of paper and board was at peak seasonal levels in the first four months, according to the Dept. of Commerce Pulp and Paper Industry Report for June. Paper output gained 6.8 percent and paperboard 4.6 percent over the same period of 1947.

Reports from field offices of the Department, however, indicate that production during May and June may be at a lower level, due largely to the closing down of several machines in Eastern mills for repairs and replacement, the complete shutdown of four West Coast mills as a result of flood conditions along the Columbia River, and the boommen's strike.

W. L. Neubrech, Chief of the Pulp and Paper Unit, Office of Domestic Commerce, said that it is not yet possible to estimate accurately the tonnage which will be lost as the result of the West Coast floods. If the mills should remain closed for a month, he said, the loss could reach some 20,000 tons of paper. This would be about 32 percent of West Coast paper capacity (excluding paperboard and building papers), but only about 2 percent of national capacity.

Mr. Neubrech said that wood pulp production curtailment, due to high water in the Northwest, probably would be small, so far as national totals are concerned. Reports from Department field offices elsewhere in the country, with two exceptions, do not emphasize wood pulp scarcities. In the concentrated paper producing area of southwestern Ohio, some pulp shortages were noted in nonintegrated paper mills, attributed largely to delay in pulp shipment from the Pacific Northwest. However, these mills, for the most part, are reported to have inventories not substantially less than the average for the country. Another report of pulp scarcity comes from the Lake States area, where a number of mills are using pulp from inventory. Some of these mills expect to draw on their present inventories until the latter part of July, the Department states.

Total domestic production of wood pulp for own use and market sale during the first four months of 1948 showed a gain of 260,000 tons, nearly 7 percent greater than during the comparable period in 1947, itself a record production year. An outstanding gain, percentage-wise, was made in output of bleached sulphate, but bleached sulphite and groundwood ran somewhat behind average increases. Overall consumption of pulp during the first four months of this year was about 350,000 tons, or 8 percent over the corresponding months of 1947. Bleached sulphate again ran proportionately well in advance of other grades.

National pulp stocks at the end of April were at virtually the same level as at the close of March. April 30 inventories, however, were 50 percent above those of the same date last year.

Mathieson Licensing Mercury Cell Process

NEW YORK — Mathieson Chemical Corp., will license its new stationary mercury cell for production of chlorine and caustic soda to domestic and foreign producers, Thomas S. Nichols, president of the firm disclosed late in June.

Producing 50 per cent caustic liquid directly at the cell, the unit requires less floor space and power, and less costly construction materials than European mercury cells, Mr. Nichols stated.

A technical staff is being organized and trained under the direction of Dr. William C. Gardiner, who completed development on the electrolytic cell, to advise on construction, installation and initial operation.

Scott Advances Two

PHILADELPHIA—Scott Paper Co. has named two members of the consumers' representatives department to new posts with the company. Stuart McIntyre, shift manager, will move into the purchasing department while Robert Thomson will take Mr. McIntyre's job of shift manager in the Consumer's Department.

May Paper Production

(Continued from page 24)

board mills at the end of April of this year in comparison to April of last year. The analysis indicates that inventories of market pulp had reached a practicable working basis for the first time in about five years.

In a review of the present paper market, it is pointed out that due to steady paper consumption, a balance between the volume available and the volume consumed is being gradually reached grade by grade. Under these circumstances, paper inventories should reach normal proportions and normal qualities without great disturbance. New outlets and uses for paper have been awaiting adequate supplies, and the volume of production to sustain them is now available in some grades of paper.

The daily average production for May of the papers manufactured by members of the Divisional Associations of the American Paper & Pulp Ass'n. increased 7 percent over May 1947, but remained the same as production for April. Orders received in May were 2.0 percent below production. The backlog of orders decreased 1.1 percent and stocks on hand at the mills increased 3.5 percent.

OBITUARY

Agner B. Hansen

Agner B. Hansen, 52, president, general manager and a director of the Northern Paper Mills, Green Bay, Wis., died on July 4 following a protracted illness.

Since 1936 Mr. Hansen had been president of Northern Paper Mills, Ltd., of Canada. He was president of the Patten Logging Co., the North Shore Timber Co., the Cloverland Supply Co., and the Falls Paper & Power Co. Surviving him are two children, James and Barbara.

After being chief chemist of the Marinette & Menominee Paper Co., Marinette, Wis., in 1922-29, Mr. Hansen joined the Northern Paper Mills as purchasing agent and safety director. He became mill manager later in 1929, was executive vice-president and general manager in 1935-41, and from 1941 on was president and general manager.

Mr. Hansen was deputy director of the Pulp and Paper Division of the WPB during the war. He had been a member of TAPPI since 1922.

Whitt Schultz

Whitt Schultz, 58, vice-president of Atlas Boxmakers, Inc., Chicago, died of a heart attack on June 25, while enroute home on a train from Minneapolis.

Surviving Mr. Schultz are Mrs. Gladys Schultz; two daughters, Mary J. Roberts and Judith, and a son, Whitt N. Mr. Schultz's home was at 1007 Ridgewood Place, Highland Park, Ill.

George Greene

George Greene, 44, general manager of the Windsor Locks Paper Corp., Windsor Locks, Conn., died at St. Francis Hospital in Hartford, Conn., on June 23. Surviving Mr. Greene are his widow and a daughter, both of whom live in Montague, Mass.; three sisters and two brothers.

Frank Douglass Wilson

Frank Douglass Wilson, 78, first vice-president of the Mapes Consolidated Mfg. Co., and a pioneer in the paperboard industry, died at his farm home at Plainfield, Ill., on June 25. Surviving Mr. Wilson are his widow, Mrs. Gertrude E. Wilson, and a son, Donald D. Wilson.

Grant Foster

Grant Foster, 76, associated with Frank H. Davis Co., of Cambridge, Mass., for the past 56 years, died June 17.

Pitch Green Bay Keynote

(Continued from page 9)

papers. One of these, "Correcting Some Flat Screen Problems—One Mill's Methods," was presented by Don Calkins of the Wausau Paper Mills. The other two papers covered jointly the subject, "Some Recent Developments in Kraft Mill Recovery." The first of the latter papers was presented by T. T. Collins, Jr., the second by P. H. West, both of the Thilmany Pulp and Paper Co.

Here again, the subject material made available through the presentation of these three papers was most helpful and practical.

Entertainment features of the convention included a golf tournament at the Oneida Country Club, bowling at Don Hutson's, a trapshoot at the Green Bay Yacht Club, and the regular luncheon and dinner meetings. At the June 19 luncheon J. MacNamara of the Rhinelander Paper Company spoke on labor relations problems.

The meeting was concluded with a joint dinner-dance at Hotel Northland. All other features of the program were held at Hotel Beaumont.

Registration totalled approximately 200, including the ladies.

Barrell's Paper Annual, Seventh Volume, Issued

The seventh volume of *Barrell's Paper Annual* is ready for distribution as a free service to members of the paper industry from the manufacturers of Siamese and Tour Boss dryer felts.

The Directory of Officials of the Paper Industry has been expanded to include the Gummed Industries Ass'n., Inc., and Paper & Twine Ass'n.

Three illustrated feature articles make up the front matter of Volume VII. (1) "A Bird's-eye View of the American Pulp & Paper Industry," by E. W. Tinker, executive secretary of the American Pulp & Paper Ass'n.; (2) "Great American Research Laboratories", The Hercules Powder Co., and (3) "How Uncle Sam Buys Paper," by M. S. Kantrowitz, technical director of the U.S. Government Printing Office.

The volume is bound with cloth covers and a plastic back. Copies may be obtained without charge by writing to the William L. Barrell Co., Lawrence, Mass.

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Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1948		Corresponding Weeks—1947	
May 22	100.3	May 24	105.1
May 29	98.9	May 31	105.6
June 5	92.9	June 7	106.7
June 12	95.0	June 14	107.2
June 19	95.0	June 21	106.1
June 26	*99.5*	June 28	103.7

COMPARATIVE MONTHLY SUMMARIES

1947						1948	
Jan.	102.1	May	106.2	Oct.	109.5	Jan.	100.9
Feb.	105.9	June	106.0	Nov.	109.3	Feb.	100.3
Mar.	106.1	July	93.5	Dec.	101.5	Mar.	100.6
Apr.	105.1	Aug	104.2			Apr.	102.5
		Sept.	102.0	Avg.	104.3	May	*100.4*

COMPARATIVE YEARLY SUMMARIES

	1941	1942	1943	1944	1945	1946	1947	1948
Year to Date	93.5	99.1	88.8	88.6	88.9	100.4	105.5	*100.0*
Year Average	97.4	90.4	87.8	88.1	89.4	101.1	104.3	

NOTE: As of January 10 capacity base increased by 13.3%.

PAPERBOARD OPERATING RATIOS†

Current Weeks—1948		Corresponding Weeks—1947	
May 22	100	May 24	102
May 29	100	May 31	98
June 5	87	June 7	98
June 12	101	June 14	103
June 19	97	June 21	102
June 26	*97*	June 28	102

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1947	99	103	101	100	101	101	90	99	96	101	99	89	98
1948	99	100	102	102	*100*								

*Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

†Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

U. S. Testing Co. Setting Up Ultra-Sonorator

HOBOKEN, N. J. — In entering the field of supersonic research, the United States Testing Co. announced on July 1 completion of arrangements to take over in specific fields the research and development activities of the Crystal Research Laboratories of Hartford, Conn. This latter company developed the Ultra-Sonorator, the first laboratory apparatus for utilizing commercially the sound waves in ranges above those audible to the human ear.

Ultra-Sonorator apparatus is being installed at the Hoboken plant of the testing company, which together with a selected scientific personnel, will form a complete operation for servicing this new field of investigation.

The Sonorator, as developed by the Crystal Laboratory, utilizes the vibrations set up by sound waves of over 200,000 per second and up to 1,500,000 per second for mixing all types emulsions, destruction of bacteria and other uses.

Meredith, Simmons & Co., New Plant Operating

NEW YORK — A modernly equipped glue and adhesives plant has commenced operations in Canada. Meredith, Simmons & Co., Ltd., the Canadian affiliate of National Adhesives, has completed erection of a large plant to replace the original installation in Montreal for many years. The new installation, together with the recently remodeled factory at Toronto, will produce liquid adhesives, pastes, flexible and non-warp glues, resyn and rubber base adhesives, and dry glues, as well as specialty products for use by the paper and textile industries. A substantial tonnage of animal glue and technical gelatine will also be produced in the Montreal unit.

In addition to the Canadian facilities of Meredith, Simmons & Co., Ltd., National operates four plants in the United States, one in England, and another in Holland.

Ludox Colloidal Silica In Commercial Production

EAST CHICAGO, Ind.—"Ludox" colloidal silica is now being produced in full-scale commercial quantities. A new unit to manufacture this water solution of "sand" just been completed at the local works of the Grasselli Chemicals department of the Du Pont Co.

When first announced by Du Pont in October, 1947, "Ludox" was available only on a small scale in 18 percent silica concentrations. Stable solutions with a concentration of 30 percent are now being produced.

Armstrong Cork Co.

LANCASTER, Pa.—Armstrong Cork Co. expects a "continuation of the present high level of consumer demand for at least the remainder of this year" said C. N. Painter, vice-president and general manager of the floor divisions in announcing the company's 16 new patterns for Fall. "General business activity remains at an extremely high level," he said, "and although basic economic conditions continue to be somewhat unstable, no collapse or serious setback appears imminent."

As new production facilities become effective, shipments of floor coverings and felt-base rugs will increase. Capacity production on linoleum will be continued, Mr. Painter said, and offerings should be about at the rate established in the spring. The allocation program, especially on asphalt tile, will be maintained and shipments of this item in l.c.l. lots will be distributed only through Armstrong outlets, starting July 1.

Notwithstanding higher wage rates which became effective June 10, no general price increase in base mill prices of floor and wall covering lines is planned at this time, Mr. Painter said.

Ohio Valley Mill Men Licking Stream Pollution

CINCINNATI — Methods by which Ohio Valley paper mills can cooperate under the new Ohio River Valley Sanitation Compact in clearing the streams of pollution were discussed on June 22 at meeting of the National Council for Stream Improvement of the Pulp Paper and Paper Board Industry at Hotel Netherland-Plaza.

Participants were members of the council's central region, representing paper manufacturers in Ohio, Indiana, Illinois and Iowa.

Marathon's Rothschilders Picnic on July 4

ROTHSCHILD, Wis. — The thirteenth annual picnic for employes of the Rothschild division of Marathon Corp. was held July 4 at Rothschild Park. Lawrence Pflieger was general chairman. The outing was sponsored by the Paper Makers Local 319, Pulp and Sulphite Workers' Local 217 and the office employes. It featured a king and queen contest, games and contests for children and adults and a dance in the pavilion during the evening.

Scott's Prescott Addresses Sales Executives Club

ATLANTA, Ga. — Theodore W. Prescott, retail advertising and promotion manager of the Scott Paper Co., was guest speaker at a recent meeting of the Atlanta Sales Executives Club. His subject was "Salesmanship as a Career."

Mexican Pulp Mill Planned

CHIHUAHUA, Ch., Mexico — A four-million-peso project for construction of a wood pulp mill and a paper manufacturing plant in the state of Chihuahua is being studied by the Union de Madereros de Chihuahua (lumbermen's union).

Ownership and Availability of Lake States Pulpwood

By R. N. Cunningham, Forest Economist, Lake States Forest Experiment Station[1]

About one-sixth of the Nation's pulp and paper industry operates in the three states of Michigan, Minnesota, and Wisconsin. For raw materials, this industry depends largely upon products from 50 million acres of local commercial forest land. Its current and prospective wood requirements are well within the productive capacity of these forest lands. However, the industry's strong preference for certain species on the one hand, and the past abuse of the lands producing these species, has led to serious if temporary shortages. The industry, naturally, is concerned with the problem of what it can do to improve this situation.

At the Detroit meeting of the TAPPI in September 1946, Mr. E. L. Demmon presented a statement of the available pulp timber stands in the Lake States, showing total volumes of the principal pulping species and comparing recent drain with estimated allowable annual cut. That statement indicated a rather critical shortage in the supplies of softwood species, especially spruce and pine, with relative abundance in aspen and other hardwoods.

In this paper, the supply situation is further analyzed from the standpoint of location and ownership as factors influencing immediate availability and prospective future renewal.

Location of Supplies

Roughly, two-fifths of the pulpwood supplies of the region are found in Minnesota, two-fifths in Michigan, and only one-fifth in Wisconsin. The Wisconsin share of some of the key species is even smaller, being only 17 percent of the jack pine and only 11 percent of the spruce and fir (table 1).

In Minnesota, the bulk of the pulpwood supplies is in the northeastern corner of the State, at some distance from the mills and some of it not readily accessible by existing means of transportation. For example, 60 percent of all the jack pine in the State is in this northeast corner (fig. 1), as well as 40 percent of the spruce and fir. These species are much more heavily depleted in districts immediately tributary to the principal mills.

In Michigan, the largest share of jack pine is found in the northern half of the Lower Peninsula. Otherwise, the larger supplies of pulpwood remain in the Upper Peninsula, which has 93 percent of the State's spruce and fir and 95 percent of its hemlock.

This distribution of timber is not advantageous for the majority of Lake States pulp and paper mills. Nearly half of the region's paper-mill capacity is concentrated in lower Michigan, mostly in the vicinity of Kalamazoo. This district is no longer a large pulp-producing area, and is far removed from important stands of softwood pulp timber.

The Fox River and Wisconsin River Valleys in Wisconsin include another major segment of the paper-mill capacity and a preponderance of the region's pulping capacity. Yet, the surrounding area has only minor quantities of mature pulpwood timber.

Minnesota, which contains some of the best remaining supplies of spruce and pine, has a relatively small share of the pulp- and paper-mill capacity.

Because the industries are concentrated at considerable distances from wood supplies, we find rather extended wood movements within the region (fig. 2). Wisconsin mills, for example, received 27 percent of their wood from Canada in 1946, 29 percent from the Upper Peninsula of Michigan, 20 percent from Minnesota, 1 percent from the Rocky Mountain states. They obtained only 23 percent from Wisconsin sources.

This maldistribution of supplies is not inherent in the Lake States situation. Wisconsin has essentially the same productve forest acreage as the adjoining states, and equal capacity for growing timber. Southern Michigan once produced the heaviest pine yields in the region. The present shortages have developed because forest regeneration has not kept pace with cutting of mature timber. It can be corrected by concerted efforts to build up the existing young stands and reforesting presently understocked spruce-fir and pine lands in these states. On the other hand, Minnesota, if it can maintain its forest lands permanently productive, without doubt can induce new industries to set up processing plants within its borders.

Ownership of Pulp Timber

Public ownership is a much larger factor in the Lake States than in other parts of the Eastern United States. More than 40 percent of the commercial forest land here is controlled by federal, state, and county governments, as compared with 9 percent in the South, 6 per-

Table 1.—*Total supply[1] of timber of principal pulping species in the Lake States, by state and species—1945*

State	Principal pulping species				
	Balsam Fir	Jack Pine	Hemlock	Aspen	Total
	Thousands of cords (rough wood)				
Minnesota	13,500	8,100	0	24,600	46,200
Wisconsin	3,100	2,000	4,600	12,800	22,500
Michigan	11,100	1,600	15,700	20,700	49,100
Region	27,700	11,700	20,300	58,100	117,800

[1] The volumes consist of both sawlog-size material and sound cordwood to a minimum 4-inch top. This includes some material too rough or crooked to make standard pulpwood but, except in the case of aspen, the proportion of substandard wood is small. Approximately 25,500 M cords of the aspen is substandard.

[1] Maintained by the Department of Agriculture, Forest Service in cooperation with the University of Minnesota, University Farm, St. Paul 1, Minnesota.

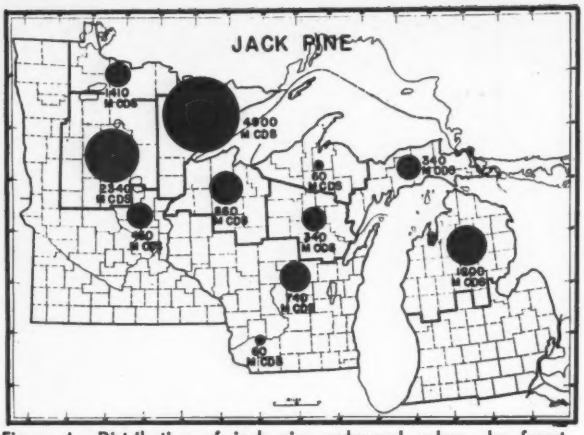


Figure 1.—Distribution of jack pine pulpwood volume by forest-survey districts—1945.

cent in the Central States, and 5 percent in New England. The actual division of commercial forest land in the Lake States is as follows:

	Acres	Percent
Federal	6,495,000	13
State	7,810,000	15
County	6,995,000	14
Farm	13,930,000	28
Other private	15,115,000	30
Total	50,345,000	100

Public agencies own a little less than half of the merchantable volume of the more common pulp species, having 48 percent of the spruce and fir, 67 percent of the jack pine, 65 percent of the aspen, but only 12 percent of the hemlock (table 2).

In the case of spruce and balsam fir, the State holds a dominant position in Minnesota, whereas in Wisconsin and Michigan the public agencies are surpassed by private owners (fig. 3).

In the case of jack pine, the outstanding ownership is federal because of the large block of mature pine on the Superior National Forest in Minnesota (fig. 4).

In contrast with the other softwoods, most hemlock is privately owned. The only very large public block is in the Menominee Indian Reservation in Wisconsin.

Aspen is reasonably abundant in all ownerships and in the aggregate supplies exceed annual drain by a large figure. However, many stands, particularly on public forests, are marginal from an operating standpoint because of small size of timber, poor quality, low volume per acre, or relative inaccessibility. Such stands are being utilized insufficiently, while the better stands close to mills and on good roads often are being seriously overcut. For example, in northern Minnesota, in 1946-47, only about two-thirds of the estimated allowable drain of 653,000 cords was cut on all lands. However, on privately owned lands, approximately 347,000 cords were cut, where the estimated allowable drain was but 278,000 cords. In contrast, the federal, state, and county lands yielded only 99,000 cords from their estimated capacity of 375,000 cords.

Federal Ownership

The federal timberlands, mainly in National Forests and Indian Reservations, are being managed rather intensively but are yielding at present less than one-tenth of one cord per acre per year of saw timber and pulpwood. These forests, many of them created during the 1930's from recently logged or burned lands, include extensive areas of seedling and sapling timber with intermingled grass and brush. They include some mature timber, but mostly in scattered patches or in rather inaccessible locations. To increase the yields substantially will require accelerating the planting of deforested areas, constructing more access roads to tap presently merchantable stands, and maintaining sufficient timber-sale personnel to permit making many small timber sales from thinnings and improvement cuttings.

State Ownership

The states each have several productive and well-managed state forests, but they also have other large holdings—game projects, water-control projects, and unorganized wild land—on which the production of forecast products is only partially developed. The overall average annual yield is only about one-twentieth cord of saw timber and pulpwood per acre. To increase timber production will require consolidating the scattered blocks of land, preparing management plans which emphasize sustained yield of forecast products, as well as game and recreation, and strengthening of timber-marketing organizations. States, likewise, need to speed up reforestation of understocked land.

County Ownership

Northern counties in Minnesota and Wisconsin have large acreages of forest land which have reverted for nonpayment of taxes. Michigan counties, because these were lands forfeited to the State, have very little. County forest lands, if well managed, will be very productive some day, but at present, yield as an average, less than one-fortieth cord per acre per year of saw timber and pulpwood. They urgently need consolidation and constructive long-range planning. They could yield more than they do now if all counties had foresters to develop small sales from thinnings and improvement cuttings.

Farmer Ownership

Many of the farm woods are naturally productive and are strategically located with reference to forest industries. Most of them, however, are run-down from overcutting, burning, and pasturing. They yield an average about one-eighth cord per acre per year of saw timber and pulpwood, and additional volumes of fuelwood, posts, and miscellaneous products. Total cut-

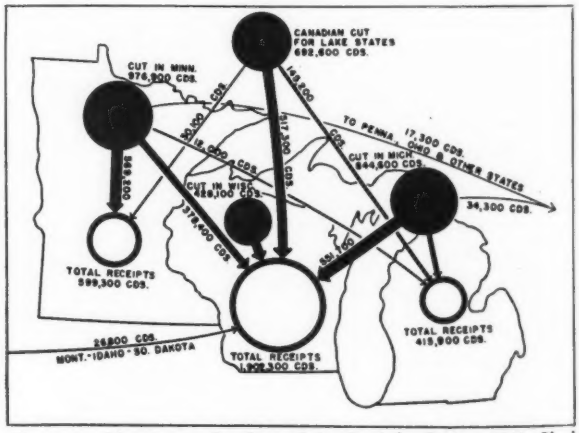

CANADIAN CUT FOR LAKE STATES 692,600 CDS.
CUT IN MINN. 376,900 CDS.
TO PENNA., OHIO & OTHER STATES 17,300 CDS.
CUT IN MICH. 644,800 CDS.
CUT IN WIS. 289,100 CDS.
34,300 CDS.
TOTAL RECEIPTS 599,300 CDS.
TOTAL RECEIPTS 415,900 CDS.
TOTAL RECEIPTS 1,902,300 CDS.
25,800 CDS. MONT.-IDAHO-SO. DAKOTA

Figure 2.—Movement of pulpwood in the Lake States, 1946. Black circles indicate volume of wood cut, arrows show shipments, open circles show volume of total recepits by mills in State.

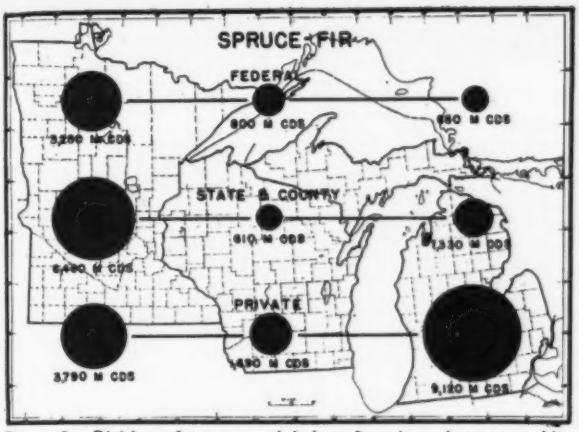


Figure 3.—Division of spruce and balsam-fir volume between public and private agencies in each Lake State—1945.

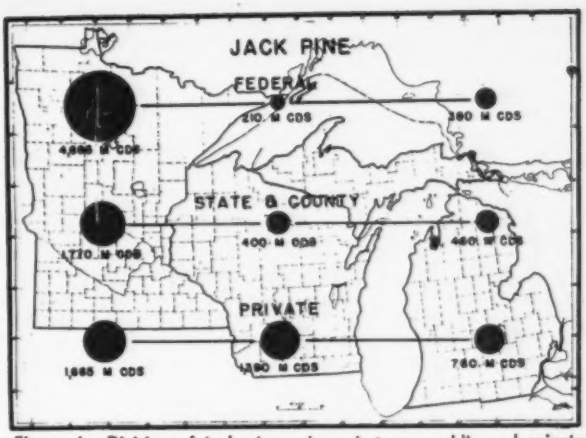


Figure 4.—Division of jack pine volume between public and private agencies in each Lake State—1945.

ting of high-grade products is more rapid than can be sustained in their present condition. Opportunities exist for increasing yields within relatively short time by improved cutting practices, restricted pasturing, better protection and reforestation. The best approach appears to be through forestry education, more extension work, increased advisory service to farmers, and offer of inexpensive planting stock. Conservation payments for planting under the AAA program have been effective in some places.

Other Private Ownership

Nonfarm private holdings are very mixed in quality and are owned by a large number of individuals and companies with diverse interests. As an average, they yield nearly one-third of one cord per acre per year, but a great deal of this is liquidation of capital rather than cutting for sustained yields.

The extreme diversity of ownership is a complicating factor in trying to devise plans for constructive management for the private timberlands. Approximate ownership in 1945 was about as follows:

	Acres	Percent
Pulp companies	1,564,000*	10.3
Lumber companies	1,634,000	10.8
Mining companies	600,000	4.0
Hunting and recreation	110,000	.7
Railroads	27,000	.2
Light and power companies	205,000	1.4
Land company and miscellaneous	360,000	2.4
	4,500,000	29.8
Miscellaneous, small	10,615,000	70.2
Total	15,115,000	100.0

* Probably 2,000,000 acres now.

It seems inescapable that the pulp and paper companies will have to expand their own holdings to insure proper treatment of the forest lands upon which they depend for future raw materials. They can also take the initiative in promoting cooperative arrangements with lumber companies, mining companies, resort own-

Table 2.—*Approximate division of standing pulpwood volume between owner groups, Lake States—1945*

Owner group	Spruce and Balsam Fir	Jack Pine	Hemlock	Aspen	Total
	Thousands of cords				
Federal	4,700	5,255	1,570	3,960	15,485
State	5,540	1,850	720	4,340	12,450
County	2,860	780	190	3,980	7,810
Farm	2,840	1,035	1,200	7,510	12,585
Other private	11,760	2,780	16,620	12,810	43,970
All Owners	27,700	11,700	20,300	58,100	117,800

ers, and some other classes of owners, with the idea of developing management plans for integrated use.

From this review it will be seen that the Lake States pulp and paper industry, now producing about one-sixth of the Nation's wood fiber, is faced with a complex and difficult problems of insuring adequate future supplies of pulpwood. Because it presently owns only about 3 percent of the forest land in the region, it is very vulnerable in this period of generally short timber supplies. It can do much to improve the situation by expanding its own holdings, by lending support to programs of public agencies, and by taking the initiative in promoting cooperative management plans with other landowners looking toward integrated utilization of available forest products. Some progress is being made along these lines already.

INDUSTRIAL DEVELOPMENT

Paper Trade Journal, in this new section, proposes to make space available for discussion of administration and operational problems of the pulp and paper industry, as well as for the presentation of independent studies and research on technical and engineering subjects. Noteworthy features of paper mills, converting plants, associated industries and institutions also will be presented, as they become available. These pages will be open to all who are qualified to discuss subjects within these limits. Manuscripts, submitted for approval, will be welcomed.—E. P. McGINN, Industrial Editor.

Askania Thin Stock Consistency Regulation

By Wilbur F. Pray
Askania Regulator Co., Chicago, Ill.

What is new or of importance about this title? It can't be "Consistency Regulation" because that has generally been a part of pulp mill language and pulp mill operation almost as long as there have been pulp mills. So it may be that "Thin Stock" gives a new twist to an old subject, making it timely and of importance to everyone working at the everpresent struggle for more and better pulp.

And why this particular emphasis on "Thin Stock?" Because the importance of consistency control in ranges below 1½ per cent is something that everyone has recognized for a good many years but no one has done very much about until fairly recently. Therefore, I would like to review for you, very briefly, why it is of importance. why very little has been done about it and what can and is being done about it in quite a few mills today.

It is a big subject so I have selected a very small part of it—the application of consistency control to fine screening—as being representative of the whole and you will agree, I think, that somewhat the same considerations apply to the operation of washers, deckers, wet machines and other similar equipment.

First, as to the importance, in fact, absolute necessity of consistency control if good screening is to be produced; the subject might be dismissed with the fact that nobody questions it. I say this as a result of many, many talks with pulp mill men and finding such a general area of agreement.

But let us look at it a little further. Screening is, of course, a problem in hydraulics and its purpose is to separate the good fibers from the bad and take out the dirt. A great deal of experimental and laboratory work has been done on the process and you will find in the literature any number of tests and reports showing that there is an optimum consistency in any screening operation that will give the greatest capacity, cleanest pulp,

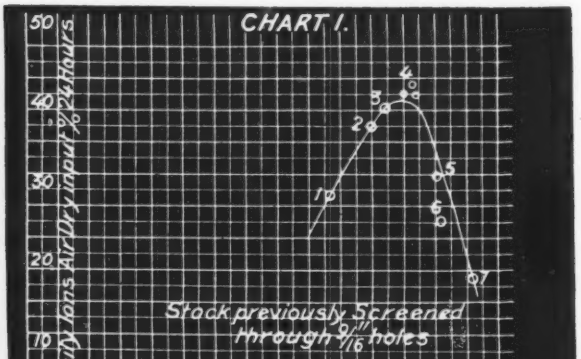


CHART I.
Capacity Tons Air Dry Input per 24 Hours
Stock previously Screened through 9/16" holes
Consistency of effluent - % Air Dry

Figure 1.

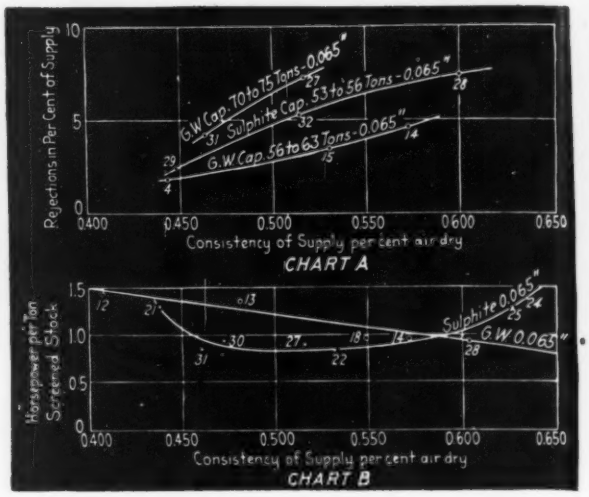

Rejections in Per Cent of Supply
G.W Cap. 70 to 75 Tons - 0.065"
Sulphite Cap. 53 to 56 Tons - 0.065"
G.W Cap. 56 to 63 Tons - 0.065"
Consistency of Supply per cent air dry
CHART A
Horsepower per Ton Screened Stock
Sulphite 0.065"
G.W 0.065"
Consistency of Supply per cent air dry
CHART B

Figure 2.

and smallest amount of good pulp in the tailings. To illustrate this point I would like to show you two charts taken from the book on pulp manufacture published by the Joint Executive Committee. The first (Fig. 1) illustrates the effect of varying consistency on capacity and indirectly on the percentage of good pulp in the tailings. This test was run on a rotary screen with groundwood, but it is typical of most screening operations. The speed was kept constant and the stock was fed at such a rate as to keep the tailings practically free from good fiber. The second (Fig. 2) Chart A, shows more directly that the thinner the stock the less good fiber is rejected and while it does not show it, I think you all realize that the thinner the stock the less dirt also is removed. If then,

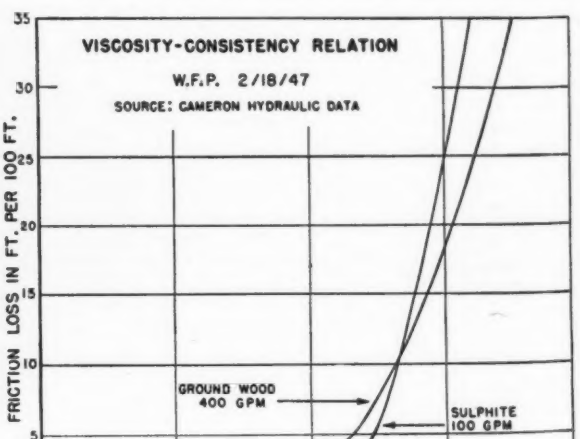


Figure 3. Curves showing difficulties of measurement and control using the viscosity-consistency principle in the thin stock ranges.

Presented at the New Orleans Convention of the American Pulp and Paper Mill Superintendents Association, May 19, 1948.

Figures 1 and 2, by permission, from "Manufacture of Pulp & Paper," Vol. 3, Third edition. Copyright 1937 by Joint Executive Committee of the Pulp & Paper Industry, published by McGraw-Hill Book Co.

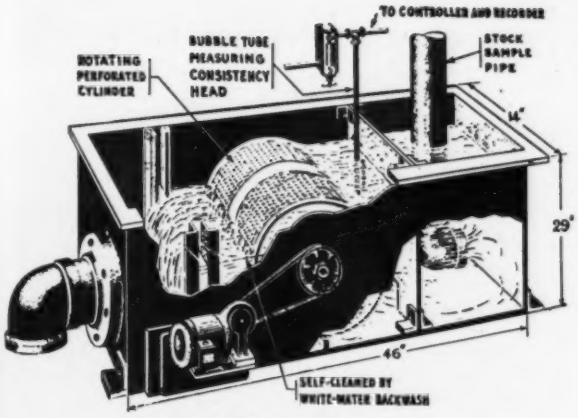


Figure 4. Cut-away detector box.

low percentage of tailings were the only objective, a very easy solution to the problem would be had by merely running the stock thin enough. Chart B (Fig. 2) shows however, that as more water is added to the stock the total power required goes up sharply. So again there we

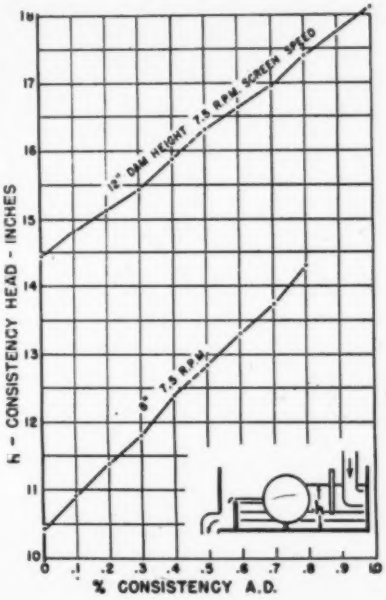


Figure 5.

have power, tailings and capacity all requiring a compromise at a point of optimum consistency.

If then it is agreed that consistency is so important a point in the screening process, why is it that it is so frequently left only to the judgment of the operator? The answer is that the continuous measurement and control of consistency in the ranges of what we call thin stock is very different from that in the thick stock ranges for which most consistency apparatus has been developed. Consequently, although the need has existed the field has been practically untouched. One possible explanation for this is that most consistency regulators have in the past been built around a common basic principle—that there is a relation between the consistency of stock and the friction resistance it meets when flowing through a pipe or, in other words, its viscosity. Obviously the difficulty of using this method of consistency measurement becomes apparent if we look at the behaviour of stock flowing in pipes at varying consistencies. (Fig. 3) shows that the consistency—viscosity relationship is very marked from at least 2 per cent up. Below this point it is plain that any method of consistency detection and control which depends on this relationship is, to say the least, likely to be insensitive. I think your own experience will bear this out.

If then we are to have consistency control in these low ranges, what is to be done about it? Obviously a new approach was necessary and I would like to show you one of them. This approach took advantage of another well-known fact; that consistency had an effect on the drainage rate of the stock when it was laid on a wire or perforated cylinder. To illustrate the principle, a diagram of such a consistency measuring set-up is shown (Fig. 4). The mechanism is similar to a pulp decker and stock is supplied to it at a constant flow-rate. The resistance to flow caused by the stock formation on the upstream face of the cylinder will cause a variation in head of the water upstream from the cylinder which will be proportional to some characteristic of the stock. This characteristic, for want of a better term, is called drainage rate and is a combination of at least two definite properties, namely, consistency and freeness, plus some minor variables as yet undetermined. If constant freeness is assumed (and it may be assumed with the same stock) Fig. 5 shows the relation between the upstream head in the detector box and consistency variations as determined under laboratory conditions. It will be seen that this relationship is linear and could be used as the

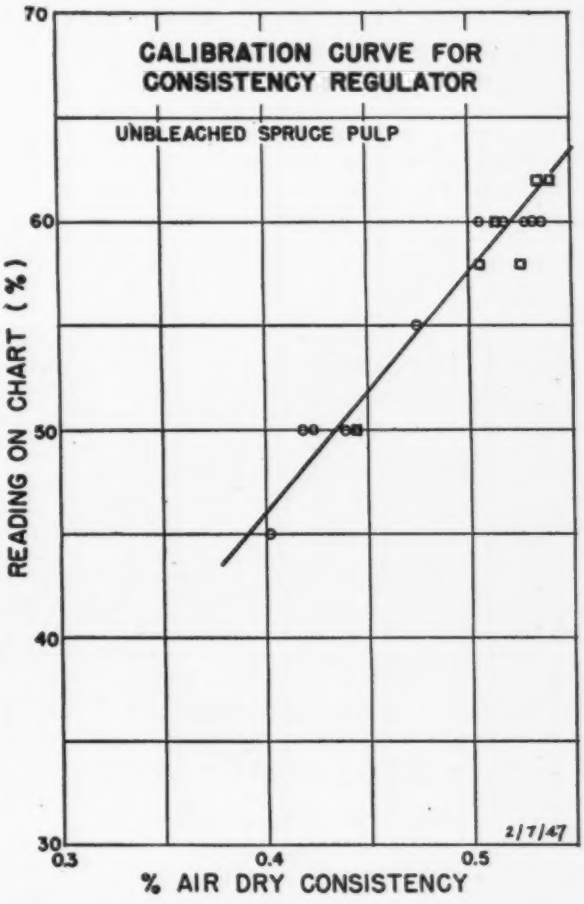


Figure 6.

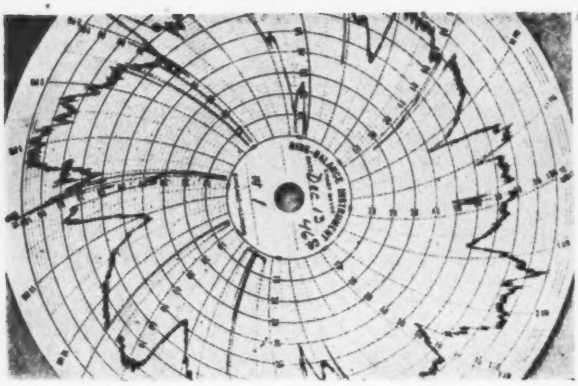


Figure 7. Record of hand-controlled consistency of stock to screens. Total chart width is 5". Each ¾" on chart represents .1% change in consistency. Point 50 on chart is .3%.

primary measuring index in automatic consistency regulation. Fig. 6 shows the result of experimental data taken in a sulphite mill screen room that shows that, at least within the limits of routine mill laboratory tests, the relationship is still sound. Fig. 7 shows a 24-hour record of consistency variations as recorded by a similar detector box in operation on the stock as it is pumped from the blow pits, diluted by hand control and fed to the screens in a sulphite mill. Fig. 8 shows the detector box in operation. This chart shows variations in consistency of from about .35 per cent to .65 per cent. Variations of this magnitude and more are not unusual in screen room operations. Considering only the amount of water pumped and assuming the optimum consistency was .5 per cent the extra water handled between .35 per cent and .5 per cent is 20,000 gallons per ton of fiber.

This chart records the pressure created by an ordinary bubbler tube measuring the consistency head in the detector box. This pressure is also used as the primary control signal for the consistency regulator shown in Fig. 9.

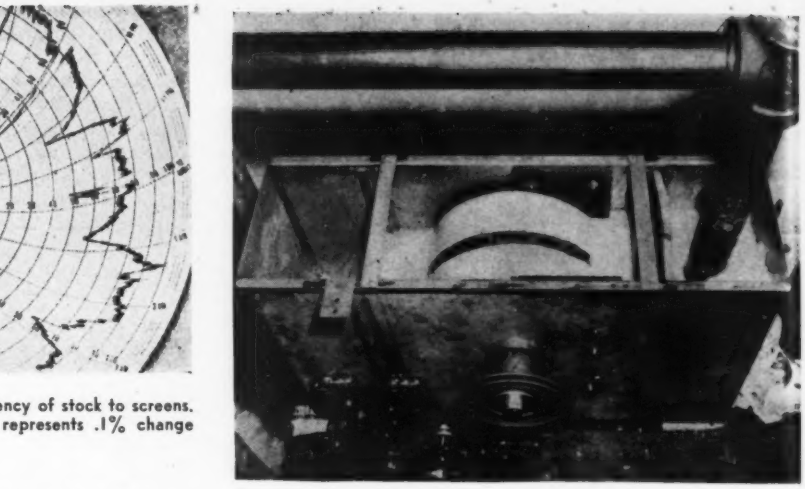


Figure 8. Consistency detector box in operation. Note that rotating screen is continuously cleaned by white water backflow through downstream face.

The control scheme shown here also takes into account another factor which enters into the picture and is of equal importance with consistency control itself; and that is the flow rate of stock to the screens. This is of particular importance because, as you can easily see, if consistency is only controlled by the addition of dilution water, the total volume will vary directly with the consistency of the stock as it comes from the blow pits or equalizing tanks. Except in the very newest mills, and even in some of them, where there is inadequate equalizing tank volume and agitation, the consistency of the stock varies widely. A variation of from .5 per cent to .4 per cent is not at all unusual. If the dilution water only, is automatically controlled it is evident that unless the operator adjusts the stock there will be severe changes in total flow rate. This means that on the average the tendency will be always to run at less than possible capacity. The answer is of course automatic control of both the stock and dilution water so as to send to the

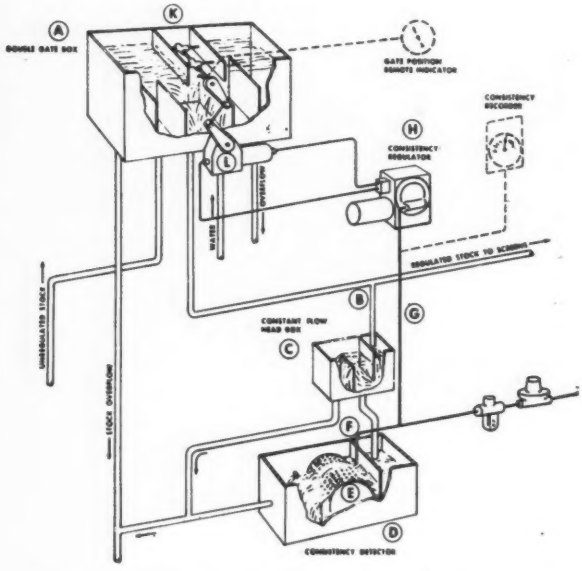


Figure 9. Consistency regulator operates double gate in a mixing box. Variations in incoming consistency are handled by simultaneously changing supply of stock and water. Result—constant output at constant consistency.

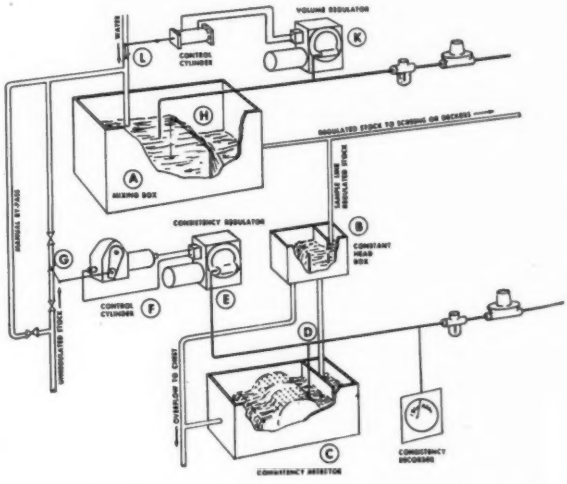


Figure 10. Consistency is controlled by regulating supply of stock. Output is measured by a weir and flow controlled by regulating supply of dilution water. A complete record of consistency and output can be had on a single chart.

screens a constant rate flow of stock at a constant consistency.

A fairly simple means has been worked out for doing this. It is basically a paper maker's head box with two compartments, one for incoming, unregulated stock and one for dilution water. A double gate arrangement controls the flow of stock on one side and water on the other in such a way that if the gate raises on one side to admit dilution water, it lowers on the other to take off a proportional amount of stock, and vice-versa. This leaves the total output of the box the same. The gate is of course moved in accordance with the commands of the regulator which is continuously measuring the consistency of the stock as it leaves the box. You can see that excellent mixing results from the two streams meeting head on just before they leave the box. Besides this the gate has proven to be a very simple and trouble-free method of handling unknotted stock.

Another very flexible and highly accurate arrangement for simultaneously controlling consistency and flow rate is shown in Fig. 10. Here the consistency regulator controls only the stock to a mixing box. A separate regulator controls the addition of dilution water so as to maintain a constant head of stock passing over a weir. In this case a record of both consistency and flow rate can be had on a single chart giving a 24-hour picture of the operation of the screens.

Summary

It is now possible to make direct, continuous measurements of, and to control the consistency of chemical pulp in the thin stock ranges up to 1½ per cent.

Previous attempts to do this with available consistency control equipment have not been too successful. The reason being that most of these regulators depend upon the relation between viscosity and consistency. This relation is marked at the higher consistency but the viscosity of stock below 1½ per cent is nearly that of water.

The new regulator measures consistency as a function of the drainage rate of the stock. This relation is of ample value for control purposes in the thin stock ranges.

In applying it to most pulp mill processes it has been found that control of the rate of flow of stock is of equal importance with consistency control.

Two general methods have been developed for doing this. In one a single regulator and a double gate mixing box operate together to produce a constant output of stock at a constant consistency. In the other, one regulator measures and controls the consistency by regulating the stock supply to a mixing box. Another regulator measures the total volume output of the mixing box and keeps it constant by regulating the addition of dilution water.

The systems outlined above are being used and have general application in sulphite and kraft mills for controlling consistency before screens, knotters, washers, drying machines and similar equipment.

The right consistency and the right flow of stock is of the upmost importance if the highest quality of the product and the highest efficiency and capacity of the equipment is to be maintained.

Paper Mill Applications for Flexible Couplings

by E. Hagenlocher, Vice-President, Thomas Flexible Coupling Co., Warren, Pa.

In the photograph shown in *Fig. 1* is illustrated the application of a standard heavy-duty moderate speed Thomas flexible coupling of the AM type *(Fig. 2)* between a 1,500 HP motor and a pulp wood chipper for reducing logs to pulp chips. The diameter of the disc on which the chipper blades are mounted is 14′ 7″ and the speed at which it runs is 240 RPM. This pulpwood chipper, built by the Sumner Iron Works of Everett, Wash., for the Weyerhaeuser industries, has a capacity of reducing a 40″ diameter log 100 feet long into chips suitable for the pulp mill in one minute.

This kind of a coupling is subject to extreme load impulses and if backlash were present it would be detrimental to the coupling and also to the connected machines. However, when the Thomas flexible coupling is used there is no backlash present and no harm is done to the coupling or to the connected machines due to the fluctuations in the load. Thomas couplings have been used on wood chippers of this type for many years and are giving continued satisfaction. There are no wearing parts in this coupling, no lubrication is required, and as long as the misalignment is kept within reasonable limits the coupling should give continuous service for many many years without attention or maintenance.

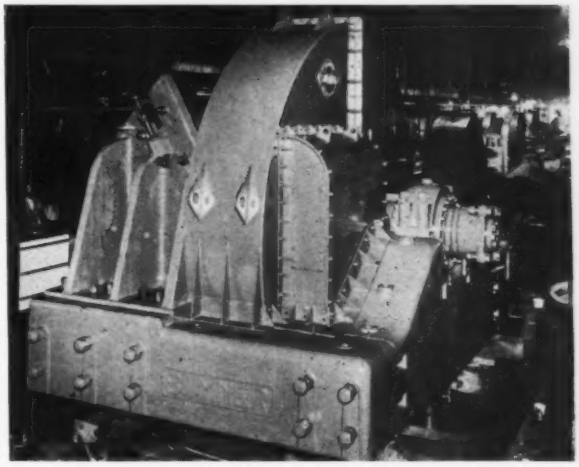


Figure 1.—Installation on summer pulpwood chipper, 175". 1500 HP, 240 RPM.

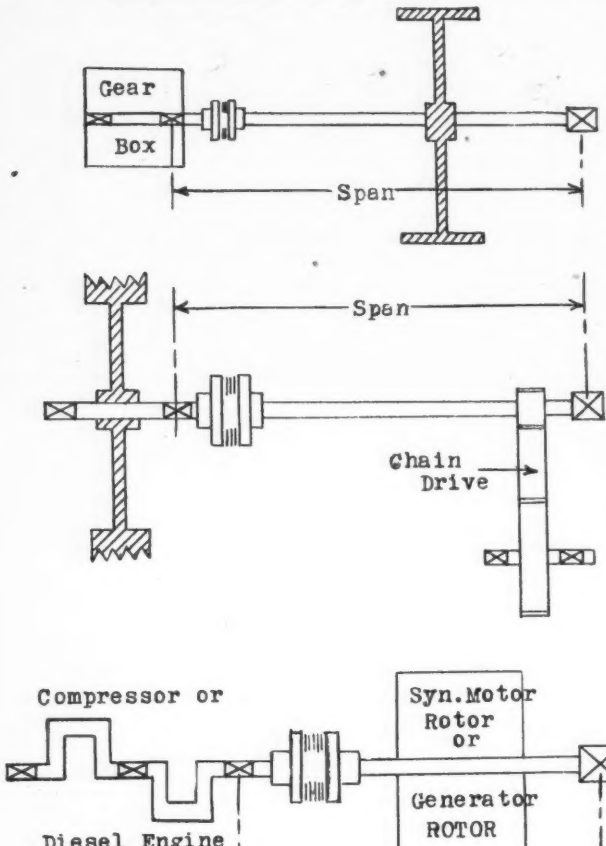
Single Type Thomas Flexible Couplings

In the sketch *Fig. 3* are shown five applications for the Thomas single type coupling for semi-floating shafts. This is a new development which gives excellent power transmission at low cost. Experience has indicated that it will be trouble-free indefinitely so long as the alignments are kept within the reasonable figures called for in the instruction manual.

The savings that can be made by the use of this equipment are so great in initial cost and maintenance that it will bear detailed study by those interested in dependable transmission of power in paper and pulp mills.

Simple New Drives Save Money, Space & Trouble.

SEMI-FLOATING SHAFTS



Applications of Single Disc Ring Type Flexible Couplings

made by

Thomas Flexible Coupling Co.
Warren, Penna.

Types: S, SN, DBZ-D are used with light radial loads.

Types: SS, ST and BM are used with heavy radial loads.

Note: Couplings should be placed as close to bearings as possible.

Outboard Bearings should be mounted in spherical seats.

In the Semi-floating Shafts shown on the left only angular misalignment is present. One single type coupling can take care of angular misalignment only.

Rotor weights or Belt Tensions etc can be supported on Thomas Single Type Flexible Couplings. No possibility for shafts to get out of line or become unbalanced.

Span indicates the portion of drive taken care of by a Thomas single type coupling.

FULL FLOATING SHAFTS

When two single type Thomas Flexible couplings are connected with a floating shaft, the assembly becomes a double type coupling which can take care of both angular and parallel misalignment. The farther apart the disc rings are the greater the misalignment that can be accomodated. The floating shaft stays in balance under all conditions of operation.

The Thomas principle guarantees perfect balance under all conditions of misalignment

NO LUBRICATION REQUIRED

NO BACKLASH - NO WEAR - NO FRICTION

Figure 3.

These savings consist of the following: (1) Coupling costs are less than the standard double type. (2) Space taken by coupling is less. (3) Units can be very closely coupled, thus saving floor space and bedplate costs. (4) Single type couplings can be incorporated in long line shaft drives. (5) No lubrication is required—there is no wear—there is no friction. (6) There is no backlash in the couplings to cause trouble in operation or to

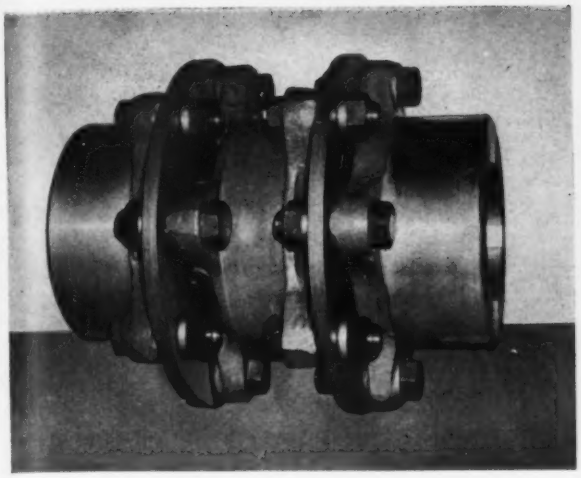


Figure 2.—Coupling for heavy duty medium or slow speeds, Sumned Iron Works, for 175" Weyerhaeuser wood chipper. 1500 HP, 240 RPM.

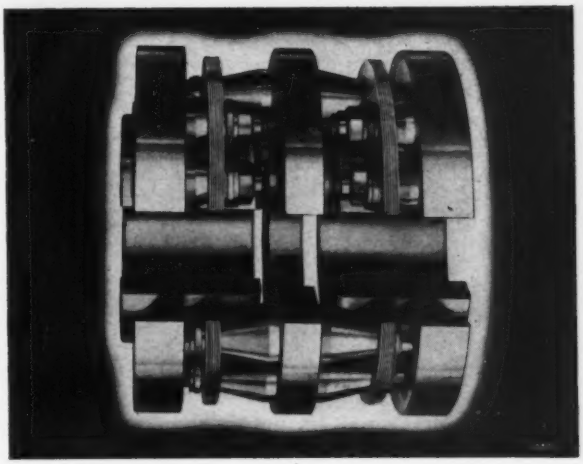


Figure 4.—Coupling. Standard P.O. #14838—R. Ferster. Split open view.

change uniformity of product. (7) Couplings maintain perfect concentricity and balance under all conditions.

The use of Thomas flexible couplings relieves the gear box bearings from external strains due both to the flexing of the shaft and from thrust since the Thomas couplings are capable of permitting free end float to the extent shown in the catalog for the various sizes. Therefore long shafts which are subject to wide temperature variations, may be coupled to take advantage of the free end float and avoid trouble due to excessive shaft expansion. Problems of this kind are readily handled by the engineering department since no two installations are alike and general descriptions would not be of much help.

Double Type Couplings

The matter of pump drives is of great importance in paper mills which must run continuously. Every precaution should be taken to see that the pumps and their driven units are connected with the proper type of coupling. Since in most cases both the pump and the motor each have their own bearings it is necessary to use a double type coupling such as Thomas DBZ type shown in *Fig. 4* to take care of both angular and parallel misalignment. (Single type couplings cannot take care of parallel misalignment.)

By using couplings which provide free end float it is possible to protect the pump so that there is no strain on the bearings and thrust will be eliminated. This prevents the possibility of the impeller being pushed against the casing causing a major repair job which might require a new impeller and possibly a new casing.

When machines are mounted on separate foundations it is more necessary than ever to select a good coupling that is capable of taking care of misalignment due to original setting or resulting from settling of foundations, wear in bearings as well as vibrational disturbances, temperature distortions, etc. Thomas all-metal flexible couplings take care of the misalignment in a manner that is technically correct. The bearings are relieved of cross-pull and thrust, the two most damaging factors in drives of any kind.

Thomas double type couplings remain in balance under all conditions of misalignment since all parts are solidly bolted together and cannot get out of balance. There is no wear, no friction and nothing to lubricate.

On tough jobs such as stump hogs, chippers, compressors, hoists, etc., they have no equal, due to the absence of backlash. Thomas couplings will run in either direction with any kind of impulse or reverse loads just as well as on smooth, steady drives.

Floating Shaft Type Coupling

In the lower right of *Fig. 3* is shown a floating shaft type of Thomas coupling. This is capable of taking care of much more misalignment than any close coupling. The Thomas floating shaft type coupling stays in balance under all conditions of misalignment, since all parts are solidly bolted together yet give flexibility where needed. It solves the problems of having units in separate rooms. It also solves such problems as cooling tower drives where the circulating fan and gear box are in the tower and the motor is outside.

CORRECTION: Through an unfortunate oversight, credit lines were inadvertantly omitted from several articles published within recent weeks in the Industrial Development Section of Paper Trade Journal. Of the organizations thus unintentionally left unidentified, the editor asks indulgence. We apologize sincerely for this lapse because Paper Trade Journal is not only willing, but diligent in its efforts to give full credit at all times when credit is due. The articles in question, which were inadequately identified as to source, were:

"Mechanical Methods of Bark Removal" which should have been identified as a paper of the Forest Products Research Society; "Automatic Digester Controls," a paper presented at the New Orleans Convention of the American Pulp & Paper Mill Superintendents Ass'n., (both published in the June 3 issue of Paper Trade Journal) and "Some Modern Concepts of Stock Preparation," a paper presented at the same gathering and published in the June 17 issue.

To Messrs. K. G. Chesley, director of the research laboratory of the Crossett Lumber Co., and to Mr. Harry E. Weston of the American Pulp & Paper Mill Superintendents Ass'n., who directed our attention to the fore-going we offer sincere thanks.

..Apropos the above: whenever you see anything in this publication that is inaccurate, or that appears to be inaccurate, we will count it a personal favor if you will call it to our attention.

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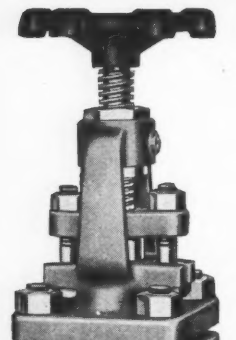

Fig. 1978—Stainless Steel Globe Valve with screwed ends, bolted flanged yoke-bonnet and outside screw rising stem.

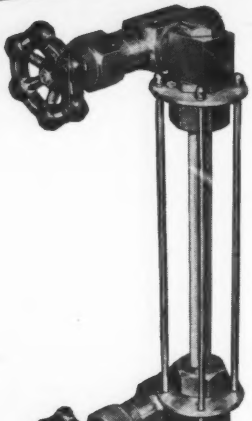

Fig. 1886—Stainless Steel Liquid Level Gauge with screwed ends. Powell offset pattern.

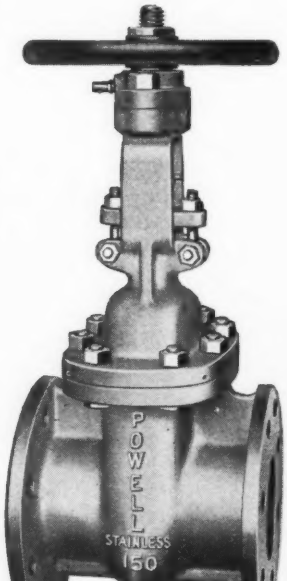

Fig. 2453-G—Stainless Steel Gate Valve with flanged ends, bolted flanged yoke-bonnet and outside screw rising stem.

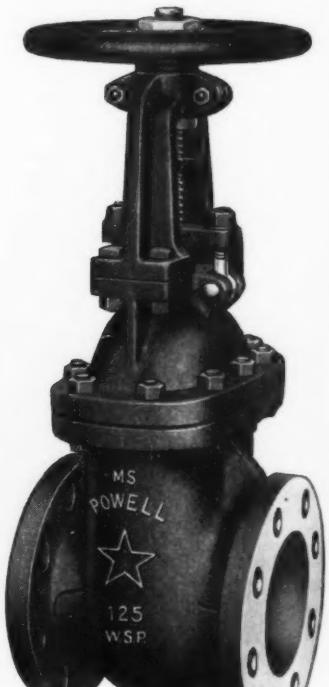

Fig. 1893—Flanged end Gate Valve designed and developed especially for Paper Mill service. Body, bonnet and yoke are cast of 3% Nickel Iron; screwed-in seat rings are of 18-8 SMo; solid wedge is made of Ni-resist.

Fig. 2051—Stainless Steel "Y" Valve with flanged ends, bolted flanged yoke-bonnet and outside screw rising stem.

If you do not have a copy of the Powell Alloy Valve Catalog No. 242—"Powell Valves for Corrosion Resistance"—write for one.

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Tailored Adhesives for Corrugated Board

By John H. Wills[1]

Abstract

The sodium silicate-clay adhesives were developed out of a recognition of the properties needed for modern high speed production of corrugated board.

More dilute liquid phases promoted proper wetting and gave added strength. A slightly higher ratio of SiO_2 to Na_2O reduced the water loss required for initial set, gave faster set, and increased resistance to high humidity.

These advantages were made possible by the addition of well selected quantities and types of clay. Besides lowering further the water loss required for initial set, the clay controlled penetration and provided a gel strength which aided in fast set and the development of well formed bond structures.

It is estimated that initial set of sodium silicate adhesives occurs at about 40,000 poises. The effect on the board of the water loss required for initial set is calculated and is shown to be a critical factor in the production of board which is stiff at the take-off.

The sodium silicate-clay adhesives used in the manufacture of corrugated board were tailored to the requirements of the industry through a knowledge of the physical properties of sodium silicate solutions. Adhesive solutions may be varied to contain proportions of alkali to silica within the limits of about 1 Na_2O to 2 SiO_2 and 1 Na_2O to 4 SiO_2. They are usually defined by this ratio and their concentration.

The new adhesives vary from the earlier sodium silicate adhesives by the use of a more dilute liquid phase and the addition of clay. Usually the liquid phase is also of higher ratio.

Effect of Dilution

The use of a more dilute liquid phase has several advantages. For instance, strongest bonds are not produced by the most concentrated grades but bond strength passes through a maximum. In addition the dilute liquid phase allows more rapid wetting and better bonding with highly calendered and hard sized board which has come into general use. The curve in Fig 1. represents the relative time of wetting a standard form of paper, No. 42 Whatman filter paper, by a series of dilutions of sodium silicates at the limiting SiO_2:Na_2O ratio used commercially.

Even in dilute solutions containing 1% Na_2O, Liddiard[3] found that the surface tension was decreased and ease of wetting accordingly increased by the use of the higher ratio sodium silicates which have a higher proportion of colloidal SiO_2. His results showing how the wetting coefficient varies with the mol ratio are given in Fig. 2.

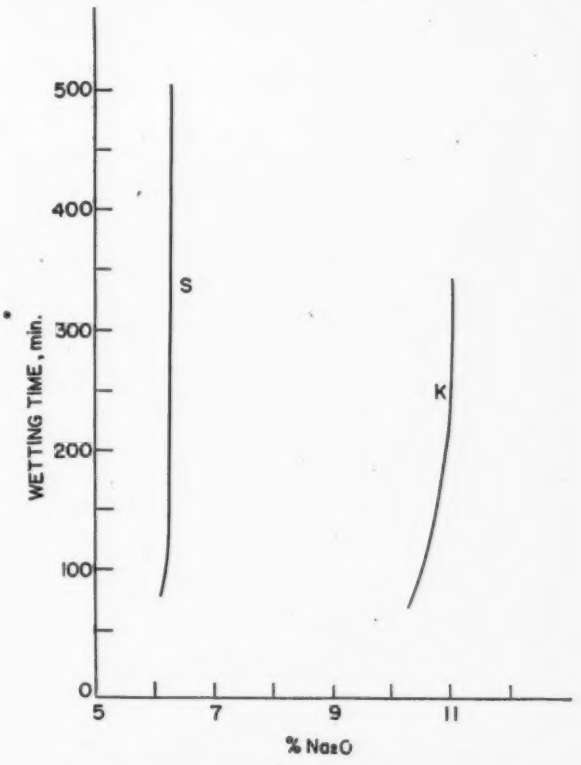

FIG. 1

The relation of % Na_2O and ratio of sodium silicate to the time required to wet No. 40 Whatman filter paper sufficiently to sink under a standard weight. "S" ratio by weight—1 Na_2O:3.9 SiO_2. "K" ratio by weight—1 Na_2O:2.9 SiO_2.

Effect of Clay Additive

As Vail and Baker[6] point out, the addition of clay to sodium silicate adhesives accomplishes several things. In the first place, it lowers the overall water loss required for the same spread of adhesive which is more or less obvious from the mathematics. It decreases alkali migration by means of its high surface absorption. These,

[1] Philadelphia Quartz Co., Philadelphia, Pa.

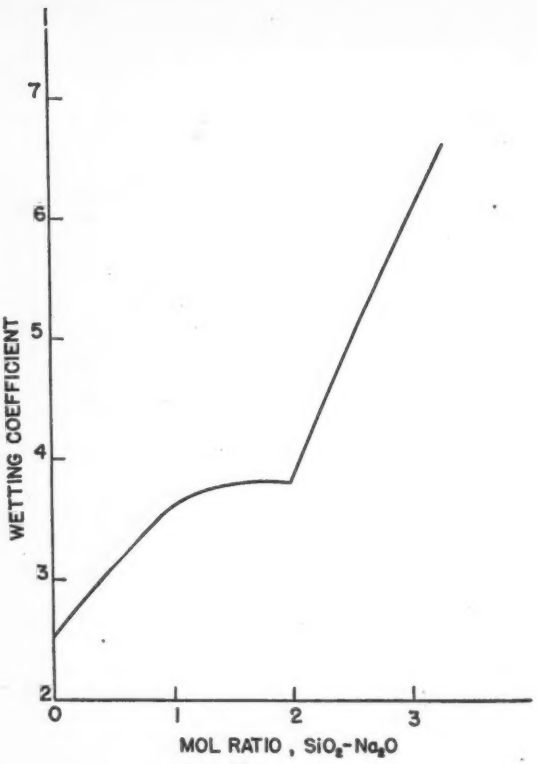

FIG. 2
Relation of wetting coefficient to the mol ratio as determined by Diddiard for dilute sodium silicates (1% Na_2O) on glass.

along with the thixotropic properties which the clay gives to the mixture, increase the rapidity with which such a solution reaches its initial set. Thixotropy is the term for materials which tend to gel, e.g. show resistance to flow after standing still but become quite liquid again when shaken. This property depends largely on concentration so that as the water is lost the remaining adhesive becomes more and more thixotropic in character and the gel strength developed contributes greatly to an early initial set. A thixotropic character also insures better bond formation since the adhesive stays where it is placed and forms broad sturdy shoulders shown in Fig. 3.

An idea of the gel strength of these thixotropic adhesives has been sought in various ways. The data shown in Fig. 4 were obtained by extrapolating yield points from Stormer viscometer data and give a general idea of the nature of the relationship. Another advantage of the high gel strength is that a bond which has been disturbed will reform more readily than is the case with ordinary silicate adhesives.

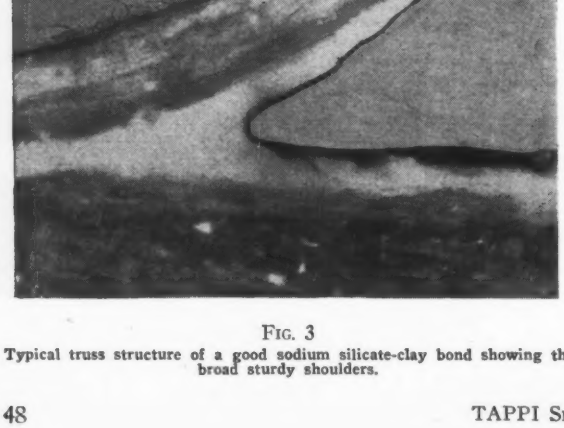

FIG. 3
Typical truss structure of a good sodium silicate-clay bond showing the broad sturdy shoulders.

The addition of clay also tends to form a barrier against the loss of a dilute adhesive into the paper and yet permits control of penetration to the optimum depth of 0.002 inch. The liquid phase initially is able to strike into dense surfaces and form a bond but the clay particles quickly cover the pores of the paper and contain the residual silicate phase thus reducing the total amount of sodium silicate in the liner itself and insuring a good sturdy bond.

The choice of adhesive formulation and paper are evidently inter-related. It has been calculated by Camp-Campins[2] that jute has less than 1 cubic foot of air for each cubic foot of air free paper while dry finish fourdrinier kraft has 2 cubic feet of air. It therefore has larger pores, and larger capillaries tend to absorb liquid more slowly. On the other hand they take in larger amounts of adhesive and penetration is more rapid. It is this tendency toward larger pores in paper liners which has made the combination of film forming property and fast wetting so important in modern corrugating adhesives and sodium silicate-clay adhesives have both of these properties.

Fig. 5 shows how the volume of filtrate which passes through a No. 40 Whatman filter paper in 24 hours varies with the clay content and dilution of the liquid phase. The clay rapidly forms a really impervious film as the filtrate has substantially the same composition as the remaining liquid phase.

This impervious film serves to protect the outer surface of the liner against alkali staining since only a minimum of alkali can pass into the board and later take advantage of a high humidity to diffuse through the liner. The use of silicates of higher ratio is also advantageous in this respect as they have a lower alkalinity initially and are more resistant to attack under damp conditions.

Those familiar with ceramics and paper coating are well aware of the great variation in clay from different sources. Naturally then not all clays will give the same viscosity and other effects with sodium silicate. In general a kaolin clay seems preferable and careful tests of proposed supplies must be made to determine that which will be most economical in terms of final clay content and mixing costs.

Effect of Higher Ratio Silicate

The use of higher ratio silicates takes advantage of the increased colloidal nature of such solutions. It is rather well known that as the ratio increases above about 3 of SiO_2 to 1 of Na_2O the larger percentage of the silica is present as colloidal micelles or particles which absorb some but not all of the alkali present. Some of the alkali at least is ionized from the surfaces of the micelles leaving charges which stabilize the colloidal suspension. The attached Fig. 6 shows the relative intensity of light scattered by filtered commercial silicates containing 2M SiO_2 as determined by Burgess et al[1]. The scattering is directly proportional to the number and size of the colloidal particles. The colloidal nature of the solutions quickly increases above a ratio of about 3.

Higher ratio silicates also require a lower water loss to obtain initial set. Attempts to find the composition of the adhesive at initial set have not been conclusive. The method which was used here involves the determination

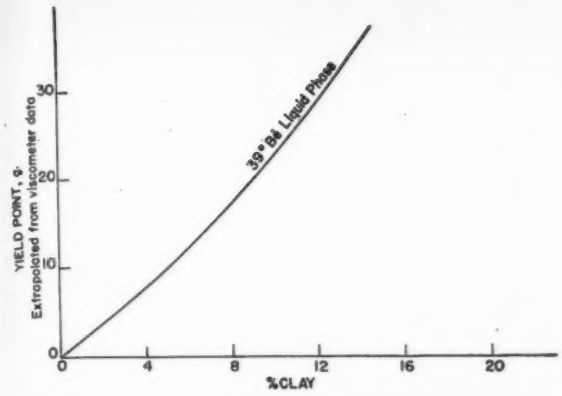

FIG. 4

The effect of clay on the yield point of sodium silicate-clay adhesives as determined from Stormer viscometer data.

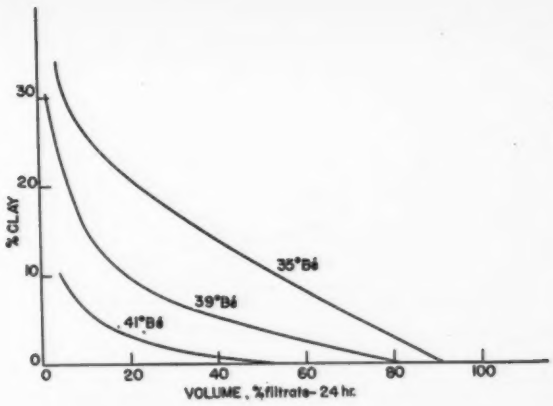

FIG. 5

The relation of clay content, specific gravity of the liquid phase and filtration volume for sodium silicate-clay adhesives at 20° C.

of the viscosity-concentration relation shown in the accompanying Fig. 7. There is evident a sharp knee ending in the region of about 40,000 poises. Also in this viscosity region a conchoidal fracture is first observed. The rate of change of increase also seems to be a maximum hereabouts. For these reasons it is construed that initial set has occurred. Above this region there appears to be another break which may mean the formation of a gel structure as the further rate of increase is fairly constant and very rapid. It is assumed that this slope would continue to the formation of a true glass.

Presuming that 40,000 poises is required for initial set in this ratio range the accompanying Fig. 8 shows the proportionate loss required for initial set for a silicate-clay adhesive compared to the liquid phase sodium silicate. Higher ratios show a more rapid loss of water and a lower equilibrium water content. Partly because of the lower equilibrium water content and partly because of the greater colloidal character, the higher ratio silicates when dried show a somewhat greater water resistance.

Effect of Water Loss

The fact that the adhesives set with the lower moisture loss makes it possible to use this sodium silicate-clay adhesive on board which is originally damper or to provide a drier, flatter board at the take-off.

The matter of an apparently small difference in loss of water to bring about initial set in the case of one adhesive compared to another may be of considerable importance. For instance, if 10% of clay is added to an adhesive which loses 12 pounds of water from 100 pounds of sodium silicate solution only 10.8 pounds of water loss will be required for initial set of the mixture. This will be aside from any effect of the thixotropic character of such solutions. Presuming that 20 pounds of adhesive may be applied to 1,000 sq. ft. of single glue line, only 2.2 pounds of water will be lost to obtain initial set. At equilibrium the structure will contain about 10% of water. Assuming that 16 point liner and 9 point corrugating medium has been used the paper adhered will contain about 7.5 pounds of water. Paper will become damp and flabby at approximately 15% water content and unseasoned rolls from mills may have as much as 12% or more water. When 2.2 pounds of water are added by the adhesives to that already present in the paper at a content of 12% water there will be 11.3 pounds of water or 15.1%. The board is just bordering on a flabby, damp state. Slight reductions in the water are of great importance and when it is recognized that warp is caused by the relative water content of the single-face and double-face liner it is evident that warp itself may be even more affected by small differences in water content.

The paths by which water may be lost have often been discussed. With A-flute board there is about 7 cubic feet of air space available for each glue line for every thousand square feet of board. At 50% relative humidity and 20°C, 0.006 pounds of water will be present for each cubic foot whereas at 80°C and 100% relative humidity 0.0183 pounds are present. Therefore, only 0.013 pounds are required to reach saturation for each cubic foot of air space. It is evident that in ordinary methods of opera-

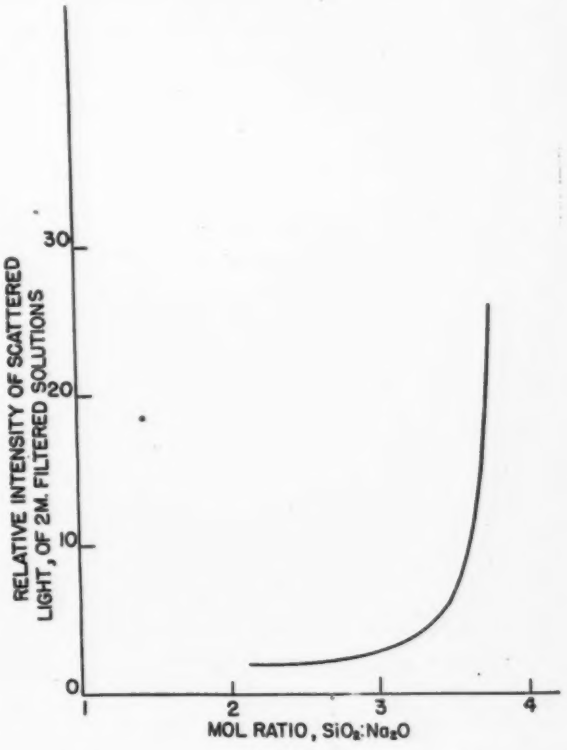

FIG. 6

Variation of the intensity of scattered light with change in mol ratio as determined by Burgess and Krishnamurti.

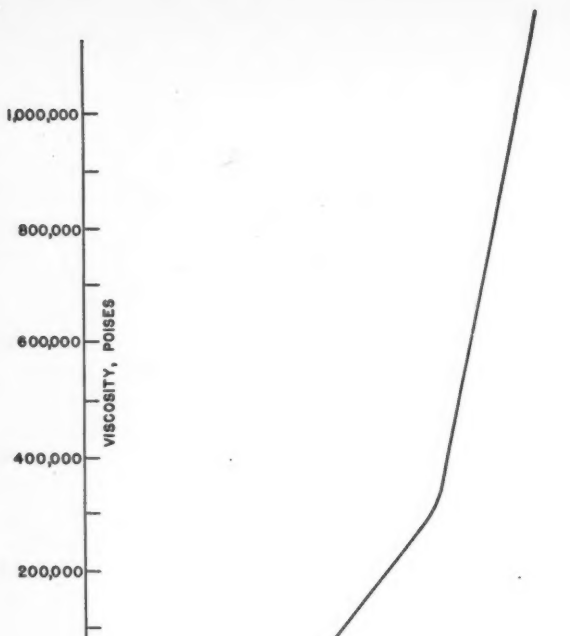

FIG. 7

The change in viscosity of a 1 Na_2O:3.22 SiO_2 sodium silicate at room temperature as water is lost.

tion where the air is not changed rapidly, comparatively little water can be removed from the glue line in this way but where ventilation is provided much larger weights can be removed.

By far the most of the 1 to 1.5 pounds of water which must be lost for initial set is lost by absorption into the paper at the higher relative humidities produced. Gradual evaporation through the paper and differential absorption of water leaving the alkali and silica at higher concentrations near the interface also will have some effect.

It is evident where stiff board is desired at the take-off, close attention should be paid to the water loss into the fiber structure as well as the initial water content.

Effect of Strength Properties

A comparison of the strength properties of paperboard fabricated under the same conditions with silicate, silicate-clay and starch adhesives has been published by McCready and Katz[4,5] and Wells[7]. The former have condensed their finding into a stiffness factor which was increased by about 5 or 10% by the use of sodium silicate-clay additive. The same holds true for other tests such as box compression, flexure and bond strength etc. but not for the Mullen or pop-test and flat-crush which seem to run contrary to most other strength tests.

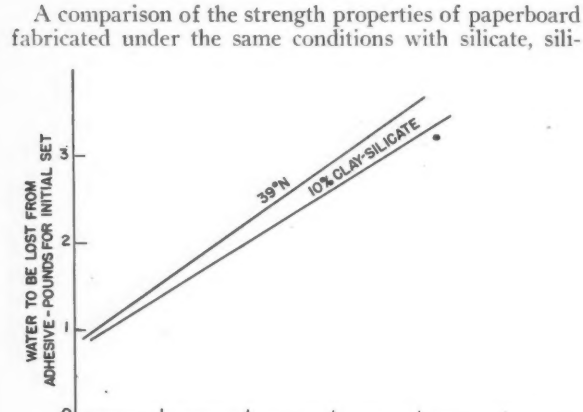

FIG. 8

The effect of clay on the water loss required for initial set.

Conclusion

These clay silicate adhesives are good examples of results obtained by applying scientific principles to the fabrication of commercial adhesives. By study of the properties of sodium silicate solutions it was possible to secure the advantages of a dilute liquid phase while at the same time maintaining the body and viscosity, adding the thixotropic properties inherent in clay-silicate systems, reducing the alkalinity and the total water which was lost before development of the initial bond.

The developments described in this paper are the result of several years of work by many members of the Chemical Department of the Philadelphia Quartz Company.

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7. Wells, S. D., "The Effect of the Adhesive in the Fabrication of Corrugated Fiberboard on the Strength and Serviceability of Corrugated Fiber Boxes." The Institute of Paper Chemistry, Appleton, Wis. (1940).

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

G. Robert Donelson, Chemist, Brightwater Paper Co., Adams, Massachusetts, a 1941 graduate of Northeastern University.

Alfons Engeler, Director, Laboratoire Federal d'essai des materiaux et Institute de Recherches, St. Gallen, Switzerland, a graduate of Eidg. Techn. Hochschule, Zurich, with the degree of Doctor Techn.

Savage C. Frieze, Jr., Supervisory Trainee, Lowe Paper Co., Ridgefield, New Jersey. Attended Fairleigh Dickinson College.

Don H. Kutchera, Professional Civil Engineer, Kimberly-Clark Corp., Neenah, Wisconsin, a 1937 graduate of the University of Wisconsin.

Arthur S. Levine, Assistant Professor, University of Massachusetts, Amherst, Massachusetts, a 1939 graduate of that university with a Ph.D degree.

John Lewis, Instructor, University of Maine, Orono, Maine, a 1943 graduate of that university.

John T. MacDonald, Resident Engineer, Provincial Paper Ltd., Toronto, Ont., Canada, a 1936 graduate of the University of Toronto.

Clinton A. Mohler, Chemical Engineer, The Mead Corp., Chillicothe, Ohio, a 1947 graduate of Ohio State University.

Joseph K. Perkins, Sales Engineer, Improved Paper Machinery Corp., Nashua, New Hampshire, a 1940 graduate of Alabama Polytechnic Institute.

Claude E. Steeves, Operating Superintendent, Marathon Paper Mills of Canada Ltd., Marathon, Ont., Canada, a 1935 graduate of the College of Puget Sound.

Morris G. Thomas, Branch Manager, Bensing Bros., & Deeney, Inc., Wakefield, Massachusetts. Attended the University of Pennsylvania.

A Review of Byproducts of Sulphite Pulping*

By Harry F. Lewis[1]

Abstract

Some of the more important application fields for the the byproducts of sulphite pulping are discussed. With a decline in lumber production there has developed an expanding market for pulp and paper, veneers and plywood, and wood wastes, which situation demands a more complete investigation of all possibilities of probable use and improvement of process.

Sulphite waste has been used as a linoleum adhesive, binder for foundry cores, briquets, and roads thus utilizing its adhesive properties. It is also used in cement, for ore flotation, and as a source of alcohol.

Because of decrease in the supply of tannin, it is suggested that additional investigation should be made of the possibilities of improving the tanning properties of the lignin from sulphite liquor.

Also of interest is its value as a source for organic chemicals such as vanillin, certain oils, and cymene and its derivatives. Such interests invite a broad program of fundamental research in order to utilize that portion of wood that is currently being lost.

Although the subject is the byproducts of sulphite pulping, the author would like to consider first some of the broad aspects of our natural resources and then review against this background the whole picture of byproducts of current and potential interest resulting from sulphite pulping. It is not his purpose to cover the field in detail for, within a short time, a very complete paper will appear in *Chemical and Engineering News* by Irwin A. Pearl on the subject "The Utilization of Sulphite Waste Liquor." The author would like to concentrate on some of the more important application fields.

Lumber Production

Most are familiar with the changing picture as regards our natural resources. An interesting report is now available, entitled "America's Needs and Resources," which was prepared for the Twentieth Century Fund in 1947 by J. F. Dewhurst and a large number of associates. The author has drawn freely on the material in this report. A quick glance at the influence of World War II on the changes in the production pattern seems to be waranted. In Table I values are taken from Dewhurst indicating a change in the position from 1929, 1939, and 1944, one of the last war years. Values for lumber for earlier years have been calculated from the production figures given by the Bureau of the Census.

A very definite increase is noted in the production of mineral products and a startling increase in the production of water and electric power. Included in the mineral raw materials are coal, petroleum, various ores, and the like. The refined metals tie back to the metallic ores, mineral fuels to coal and petroleum. Electric energy consumes both coal and petroleum. The figures point to the great increase in the demand for both these raw materials.

On the other hand, there is an apparent decline in lumber production. Dewhurst (page 592) believes this to be a real decline and refers to the year 1907 as the peak year. Certainly, when the per capita consumption is figured, there has been a decline. It may be more accurate to say that the requirements for lumber have not kept pace with the increased requirements for the metals, for coal and petroleum, and for energy. Dewhurst has listed a number of reasons which would help explain the "falling rate" of lumber production, such as new methods for economizing both in production and conversion; the use of substitutes for nearly all wood products, and here he lists furniture, window and door frames, toys, transportation vehicles such as freight and passenger cars, automobile bodies, and the like; and the effect of research on prolonging life expectancy of telephone poles, fence posts, and railroad ties through the use of an appropriate preservative. These are just

TABLE I.—CHANGES IN THE INDICES OF U. S. PRODUCTION FROM 1929 TO 1944 *

[1940 = 100]

Year	Mineral Raw Materials	Refined Metals	Mineral Fuels	Water Power	Electric Power	Lumber **
1929	93.8	98.8	90.3	73.6	66.1	127.7
1939	88.1	78.2	91.7	92.5	89.9	86.5
1944	130.2	145.3	130.2	152.5	159.2	112.5

* Dewhurst, Table 194, page 578.
** Index calculated for lumber 1899-121, 1909-154, 1919-120, 1932-35. Data from the Statistical Abstract for the United States 1944-45, page 733; Bureau of the Census figures.

a few; one can suggest many more. Over against these factors, which lessen the interest in lumber, are others which cause an increased interest in lumber production within certain fairly narrow fields, such as the expanding market for pulp, paper, and paperboard, and certain types of veneers and plywood, and the use of wood waste by the synthetic chemical industry. Dewhurst believes that these increased uses are greatly overbalanced by the decreased requirements to the point where the forest resources will meet minimum needs if used wisely. H. R. Josephson, Assistant Chief, Division of Forest Economics, Forest Service, Washington, D. C. says on page 90 of TAPPI Monograph Series No. 4, "Pulpwood Stands, Procurement, and Utilization": "Fortunately there are means of meeting the problem of timber depletion if the industry grasps the very great opportunity to increase its pulpwood resource through increased use of species now little used, through increased use of wood waste, and through better forestry in both industry and private and public forest land, and through technical developments with the industry itself."

Dewhurst lists among the factors which work toward increased annual replacement better fire and pest control, more effective use of the wood substance in the tree, and increased planting of cutover areas. In Wisconsin last year, the pulp and paper industry planted 35,000,000 trees; in this field, Wisconsin leads and it is hoped that all the other cutover states will furnish some real competition.

A thumbnail sketch of the position with reference to the other natural resources shows zinc and lead ores and domestic bauxite in very short supply (20 years is said to be the limit at half wartime consumption), high grade iron and copper ores and petroleum in short sup-

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Hotel Commodore, New York, N. Y., Feb. 23-26, 1948.
[1] Research Associate, The Institute of Paper Chemistry, Appleton, Wis.

ply, and sufficient coal and stone to last a thousand years. This picture is open to criticism, for new developments may change the picture. Unexpected deposits of scarce materials may be located, and technology may switch an application away from a scarce material to one in easy supply. New products may appear which are much better for a given requirement than were the products they replaced. New processes may make feasible the use of low-grade raw materials, such as clay, for the production of aluminum or a low-grade iron ore for a high-grade ore. A major change is already in sight in the petroleum industry where the shift in raw material interest is going (imperceptibly, one may say) from petroleum in the direction of natural gas and from natural gas to coal. The recent request of The Secretary of the Interior, Krug, for 9 billion dollars for the production of 2 million barrels of oil a day (40% of our current daily consumption) from three commercial-sized plants for the production of synthetic fuels—one from oil shale, one hydrogenating coal, and one using coal in the Fischer-Tropsch process—is a straw in the wind.

As the broad field of byproduct utilization is considered in the paper industry, it is necessary to consider not only the present competitive position of these byproducts but also their future position in the light of the changing needs. Something like this has been seen in pulpwood operations. Twenty years ago spruce was king of the pulpwoods. An eminent authority said western hemlock could never be used—then western hemlock became king. Today no king is recognized. The mills cook what they can obtain and the process is adapted to the raw material instead of the raw material to the process. Byproducts and processes which today do not fit in present economy, may tomorrow; the reverse is equally true.

It is important that one realizes one thing in connection with the approach to the utilization of wood substance and that is that we are responsible to society for what is done with these gifts of nature. The lumberman who cut clean and departed to leave behind him ghost towns and a wilderness is not much worse than the pulp man who does the same. We have to have not only the long look that insures a perpetual supply of fibre but also the broad look that insures the most effective use of the whole wood substance. The first is the problem of the forester and the forest engineer; the second, that of the chemist, the chemical engineer, the economist, and many others. Furthermore, any development of lasting value will probably require continuing, laborious, time-consuming, careful, and expensive fundamental research. Research of this type may not be immediately productive, but it furnishes a sound basis for carrying on a further program until the time comes when the picture is complete. Such fundamental work should be co-ordinated so as to eliminate too much duplication for there are all too few workers in the field; at the same time, a certain amount of competition is valuable.

Solids in Waste Liquor

Sufficient for the introduction—now for the original object of this paper, which was to consider the byproducts from sulphite pulping. Table II shows the approximate analysis of the solids in sulphite waste liquor.

Approximately 2½ million tons of sulphite pulp were produced in the United States in 1946. Since a ton of pulp is very roughtly equivalent to a ton of waste liquor solids, this would yield about 2½ million tons of waste liquor solids, corresponding to 1,250,000 tons of lignosulphonate, 500,000 tons of reducing sugar, and 75,000 tons of volatile organic acid. This is a sizable

TABLE II.—APPROXIMATE COMPOSITION OF SULPHITE WASTE LIQUOR SOLIDS

	Per Cent
Lignin (as lignosulphonate)	50-65
Sugars	15-22
Sugar sulphonic acids, etc.	5-8
Calcium (as CaO)	7-10
Sulphur (as SO_3)	8-12
Volatile organic acids (as acetic acid)	3

volume of raw material to throw away. In addition to the products derived directly from waste liquor, there is the spruce turpentine recovered in the condensate from digester release in the amount of from ⅓ to 1 gallon per ton of spruce sulphite pulp; yields from other woods vary somewhat.

In view of the upward trend which is indicated in the cost of fuel oil and the definite upward trend in the cost of coal, the matter of recovering heat by the evaporation and burning of the organic matter in sulphite liquor becomes somewhat more interesting. Unfortunately, calcium liquor does not adapt itself readily to a chemical recovery process. A peculiar characteristic of the components of the liquor makes any process of evaporation somewhat difficult, for the calcium-base liquors on evaporation deposit scale in the evaporators, and the liquor is corrosive in character and stainless steel equipment is necessary. In spite of these troubles, there are several plants in Sweden actually evaporating and burning calcium-base liquor for the recovery of heat *(1)*. Two processes are used—one the Ramén process, the other the Rosenblad process. It is said by Vincent *(2)* that the typical Swedish mill of 80 to 100 tons capacity can almost balance its fuel demand from its waste liquor. Ammonia-base liquors do not offer the same difficulties in evaporation, and two plants in the United States are presently evaporating and burning the liquors from the ammonium-base process.

In the United States and Canada still another approach has been made to the problem—namely, through the use of magnesium bisulphite liquor, as in the new plant of the Weyerhaeuser Timber Company at Longview and the plant of the Howard Smith Paper Mills Ltd. at Cornwall, Ontario. Magnesium bisulphite, because of its different physical characteristics, lends itself to the recovery both of chemicals and heat. As the evaporated liquor is burned, the magnesium salt is converted to magnesia which is recovered as an ash and this is combined with the sulphur dioxide, recovered from the combustion gases, to regenerate fresh cooking liquor. The advantage to this process is the fact that, in addition to the heat which is recovered, at least 95% of the magnesium and up to 90% of the sulphur can be recovered.

Adhesive Properties

All are familiar with the general uses for concentrated sulphite waste liquor. The material is a viscous sticky syrup useful for both its adhesive and its surface-active properties. It may be used alone as an adhesive or compounded with a variety of materials. It forms one of the most common linoleum adhesives. For years sulphite waste liquor has been used as a binder for foundry cores and for manufacturing briquets.

A large amount of publicity has been given to the use of sulphite waste liquor in one form or another for the laying of dust on dirt and gravel roads. The degree of satisfaction for this purpose depends somewhat upon the geographical location; in parts of the country where the summers are dry for long periods, the product is relatively satisfactory. On the other hand, because of its water solubility, it is readily washed out of the road in rainy areas. Improvements in the solubility of sulphite waste liquor through com-

bination with materials of the type of the currently used oils and asphalts might conceivably yield a product of increasing competitive interests in days to come with the expected increase in the cost of road oil. At the present time, however, this outlet for sulphite waste liquor would appear to be of distinctly limited interest.

Sulphite waste liquor is used for quite a variety of purposes as a dispersing agent, such as in the preparation of emulsions for insecticidal purposes, as detergents in the textile industry, and as dispersions for use in the dyeing operation.

Use in Cement

One of the potentially important applications for sulphite waste liquor of some interest is in Portland cement where it is claimed that the addition of the lignosulphonate reduces the water:cement ratio in a cement mix, reduces the setting time, and at the same time increases the durability of the concrete *(3)*. This application should be thoroughly investigated. In the case of Portland cement alone, if all the cement used in the United States were to be modified with sulphite liquor, a very sizable amount of the byproduct would be consumed. Somewhat related to this use is the addition of sulphite liquor to ceramic materials of the type of bricks, etc. An increase in strength is reported.

Sulphite waste liquor or derived products find use in ore flotation, in printing inks, as reinforcing agents for rubber, in well drilling compounds, and in the electrolytic deposition of zinc and cadmium. Many of these operations involve potentially large-scale uses for sulphite waste liquor, and it is conceivable that fundamental research might improve the properties of the product as supplied by the pulp mills. This appears to be particularly true in the case of the rubber application.

Tannin

The author would like to spend somewhat more time on one possible use where sulphite waste liquor or a modification may be of help in replacing a disappearing natural resource. Reference is made to its use in tanning. The vegetable tannins are in short supply in the United States with the disappearing resources of chestnut and the uncertain position of quebracho. The statement has been made a number of times that if the apparent "tannin content" of sulphite liquor, as determined by the standard American Leather Chemists Association method, could be raised to 65% purity or better, the product would replace up to 25% of the vegetable tannin used in the United States. Last year all together there were consumed approximately 120,000 tons of vegetable tannin on a 100% tannin basis. Translating this into sulphite liquor solids of a 65% "tannin content," there would be a requirement for approximately 46,000 tons of 65% "tannin" solids. This degree of purity (merely a term for expressing the percentage of "tannin" in the soluble solids) has already been greatly exceeded in work being done at The Institute of Paper Chemistry for the Leather Subcommittee of the Committee on Quartermaster Problems of the National Research Council; the procedure followed has not been adapted as yet to commercial scale operation. Any improvement in the tanning characteristics of the lignin in sulphite liquor, such as might accrue from an increase in the phenolic hydroxyl content, might call for even greater amounts. Similarly, it is conceivable that a synthetic tannin, which includes lignosulphonate as one of the reactants, might be the equivalent of vegetable tannin and permit the complete replacement of vegetable tannin. Tanigan Extra A, made by the Germans from phenol, sulphite liquor, and formaldehyde, was said to be equivalent to vegetable tannin for the production of sole leather *(4)*. Although potentially, such a use represents at best not more than 10% of the available lignosulphonate and, therefore, does not represent a complete solution to the problem, the matter must be looked at from the standpoint of the tanner to whom the lignin tannages would offer an inexhaustible supply of vegetable tannin replacement. Substantial amounts of vegetable tannins are used by other industries and these uses are also of interest to the sulphite manufacturer. For the role of lignin sulphonate in tanning, the reader is referred to two comprehensive articles by K. N. Gustavson *(5)* which describe a vast amount of work on the suitability of ligno sulphonates as tanning agents in vegetable tanning. Buchanan, Lollar, and Niemeyer *(6)* have prepared a number of different types of sulphite liquors and their tanning characteristics have been described. The highest purity liquor was found to come from a rayon cook; the liquor made with high free sulphur dioxide likewise appeared to yield a good liquor. Purities of 46 to 48%, on the basis of the soluble solids, are reported for the crude liquors. The rayon liquor also gave the leather with the highest shrink temperature.

Time will not permit a discussion on the possible use of the byproducts of sulphite pulping as fertilizer. There seems to be some confusion as to the part played by the sulphite liquor solids in the soil. Under some conditions beneficial results are described. Although the use of sulphite liquor solids as fertilizers or soil modifiers might consume large amounts of byproducts, of necessity the product would have to be very low in selling price in order to compete with other products presently available. The author might also pass by the subject of lignosulphonates as components of base-exchange materials for water softening. There seems to be some current interest in this particular subject.

Yeast and Alcohol

One of the most interesting uses for the carbohydrate components of the sulphite liquor relates to the production of ethyl and butyl alcohols and of acetic, propionic, butyric, and lactic acids through the fermentation of carbohydrate material in sulphite liquor by appropriate micro-organisms. Also related is the production of yeast. At the present time in the United States, there is just one plant (at Bellingham, Washington) producing ethyl alcohol by the fermentation of sulphite waste liquor; in Canada there is one at Thorold, Ontario. The plant at Bellingham was built during the war to serve both as a large-scale pilot plant and for the production of badly needed alcohol. It is said to be the lowest cost fermentation alcohol plant in the United States. In addition to alcohol, a low-boiling fraction containing methyl alcohol and aldehydes, and fusel oil are produced. The rate varies somewhat, but approximately 20 gallons of alcohol are being reported per ton of pulp. Potentially, there is in this reaction a source for a large volume of ethyl alcohol. The production of industrial ethyl alcohol in the United States is indicated in the *Economic Almanac*, 1948, as being about 20,000 proof gallons per month in 1946 or somewhat more than 240 million proof gallons per year. In case of necessity the entire sulphite pulp industry could furnish up to 20% of this requirement.

The whole future of alcohol from sulphite liquor is confused at the present time. There seems to be no question but that synthetic alcohol made from ethylene (from petroleum) can be made at a price very much below the current prices for alcohol made by any other process. Tousley *(7)* states that for each cent in price of ethylene there is a 4-cent cost for each gallon of alcohol. Thus, if ethylene had a price of 3 cents, the

cost of the alcohol would be 12 cents, to which would be added additional conversion costs of 2 cents, placing the cost somewhere between 13 and 14 cents. With 2-cent ethylene the cost will be down around 10 cents. The same authority states that molasses at 5 cents a gallon gives an over-all cost of alcohol of about 16 cents a gallon. The current price of molasses is 30.9 cents a gallon; the fixed price set in 1946 by the Commodity Credit Corporation was 13.6 cents. Thus alcohol from molasses at the present time is high price alcohol. Tousley calculated that, with corn at 50 cents a bushel, alcohol from that source would be between 20 and 25 cents a gallon. Corn as of today is about five times that price. From sulphite liquor he estimates the cost to be between 20 and 27 cents for a small production unit but suggests that a 300-ton sulphite mill should be able to make alcohol at from 15 to 19 cents a gallon. Considerable publicity has been given to the plant built at Springfield, Oregon during the war for producing alcohol from wood waste by hydrolysis. The plant is now closed, in part because of technical difficulties in its operation, so that it is hard to get a good cost on the commercial production of alcohol; Tousley thinks it may be at least 20 to 22 cents a gallon for a wood cost of $2.00 per ton, with only heat value given the lignin and no other byproduct return. The current cost is probably greater than the one quoted. E. F. Kurth, in a recent paper *(8)*, believes that the wax which may be recovered from the lignin residue from the hydrolysis of mixed Douglas fir wood and bark will help reduce this alcohol price. Seventy tons of lignin (equivalent to 10,000 gallons of alcohol) give 10,500 pounds of wax.

If the price of alcohol ever gets anywhere near prewar price, it will become extremely difficult for a sulphite pulp mill to operate competitively as an alcohol producer. At the present price of 96 cents/gallon, the Bellingham operation would seem to be extremely interesting. Only a prophet can foretell what there is for the sulphite industry in the manufacture of alcohol. Just the opposite is true in Sweden, where other alcohol sources are lacking at attractive prices. The Swedish sulphite alcohol is the basis on which an extensive organic chemical industry has been built; cheap organc chemicals from European or American sources might alter their situation.

A number of reports have appeared in the literature lately dealing with the laboratory production of 2,3-butylene glycol *(9)*, lactic acid and acetic acid *(10)*, butyric acid and acetic acid *(11)*, butyl alcohol *(12)*, etc. *(13)*. Although these are still in the experimental stage, there is more than a suggestion that the carbohydrates in sulphite waste liquor may, in an expanding economy, furnish the more valuable acids at a competitive price.

The one development in the United States of real interest in the yeast field is the construction of the new plant of the Lake States Yeast Corporation at Rhinelander, Wisconsin, where 50% of the effluent from 50 tons of sulphite pulp production of the Rhinelander sulphite mill will be used for the manufacture of 4 tons per day of the yeast *Torula utilis*. Eleven Wisconsin sulphite mills and the Detroit Sulphite Pulp and Paper Company have joined together in the construction of this so-called pilot plant. The product is to be used as a supplementary diet for horses, dogs, hogs, foxes, and poultry—especially the last. The results of this operation should go a long way toward determining the possibility of conversion of sulphite liquor into *Torula utilis* in the United States. Nothing can be said as to the cost of production, but extensive tests seem to have demonstrated the quality of the product. The operation of this plant will be followed with interest by all sulphite pulp manufacturers.

Resin Extenders

The author will pass by rather rapidly the various uses for isolated lignosulphonate. For a long time, it was the hope of the sulphite pulp manufacturers that lignin would be of interest to the plastics industry as an extender for phenolic resins. During the war, a sizable quantity of lignin was used for this purpose but, as far as can be determined, at the present time the production of lignin-extended resins is extremely small; in fact, it has been said that, currently, there are no lignin-extended molding powders being used in the United States, although this statement is rather hard to check.

Chemical Products

The conversion of sulphite lignin into pure organic chemicals of lower molecular weight offers one of the largest fields for research and development. The oxidation of lignin by caustic alone or by a mixture of caustic and nitrobenzene or caustic and metallic oxides results in the production of vanillin from softwood lignin and a mixture of vanillin and syringaldehyde from hardwood lignin. In addition to vanillin, substantial amounts of vanillic acid and syringic acid may be obtained by modification of certain of these processes. As all know, sulphite vanillin forms a very important percentage of the flavoring vanillin used in the United States and Canada. Unfortunately, the requirement is small in amount and, consequently, in the past there has not been a great deal of interest in the production of vanillin. The discovery that the esters of vanillic acid have very interesting properties as nontoxic food preservatives, disinfectants, and antimycotics, has stimulated a considerable amount of interest in the oxidation of lignin to the end that vanillic acid may be produced. The original vanillin processes are covered by patents issued to Howard and others *(14)*. The use of alkali and nitrobenzene was described by Schultz *(15)*.

The Sulphite Pulp Manufacturers' Research League, for a number of years, has been carrying on an extensive study of the chemistry of vanillin and its derivatives at The Institute of Paper Chemistry in the hopes that development of chemical uses for these products would stimulate the chemical industry and result in the wider utilization of waste liquor. A number of publications will be found in the literature descriptive of the work of the Sulphite Pulp Manufacturers' Research League, principally under the name of I. A. Pearl. Among the compounds of specific interest is ethyl vanillate, which has been shown to be even less toxic than sodium benzoate when administered in aqueous suspension and approximately as toxic as sodium benzoate when administered in oil. Ethyl vanillate has shown remarkable preservative properties in foodstuffs and to be useful in a number of medicinal applications. A new antimycotic, 5-hydroxymercurivanillin, has been prepared from vanillin and lignin. This particular compound possesses a toxicity toward micro-organisms comparable with that of the phenyl mercuric type while its toxicity toward fish is somewhat lower than the phenyl mercurials. Interested readers are referred again to Dr. Pearl's various papers for a more complete discussion of the chemistry of vanillin and vanillic acid.

At this point, reference should be made to recent patents issued to Salvesen, Hossfeld, and Lovin *(16)* which relate to the production of catechol, monohydric phenols, and neutral oils. When lignin is heated with butyl alcohol and alkali at high temperature (270° for 2 hours) sodium lignosulphonate is said to give 32.6%

catechols and 4.3% monohydric phenols.

One compound present in many sulphite liquors which now has only a theoretical interest but which may have future industrial interest is conidendrin. Conidendrin is related in a general way to lignin in that it is a dimer form of a C_6C_3 product. It has been shown by Pearl *(17)* to be present in western hemlock waste sulphite liquor to the extent of at least 1.1 grams per liter. This represents 0.6% on the original wood basis and is a figure much higher than the 200 milligrams per liter from Norway spruce reported by Holmberg *(18)*. Conidendrin has been demethylated through the use of hydrobromic acid to give norconidendrin as it has been called by Bickford and co-workers *(19)*. These authors report norconidendrin to be a better antioxidant for fats and oils than nordihydroguaiaretic acid, commonly known as N.D.G.A. and an effective and nontoxic antioxidant for fats and oils. The structural relationship of conidendrin and N.D.G.A. is shown in Fig. 1.

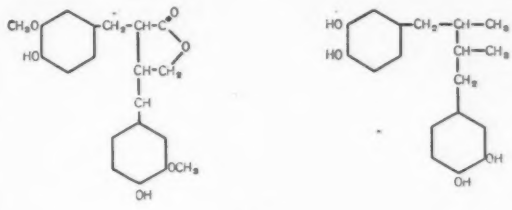

FIG. 1

Conidendrin — Nordihydroguaiaretic Acid [N.D.G.A.]

These investigators, following the report of Pearl, extracted western hemlock sulphite waste liquor with chlorinated solvents on a large scale. Such an operation can be carried out by means of a continuous extractor and conidendrin recovered by a relatively simple operation. Thus a material present in small amount might become a worthwhile product from sulphite pulping. It should be noted that Erdtman *(20)* found conidendrin in 7 of 14 spruce species, 4 out of 4 hemlock species, and 1 out of 7 fir species. Consequently, not all sulphite liquors will yield sizable amounts of conidendrin. Western hemlock seems to give an unusually high yield of the product.

The final product of sulphite pulping of some theoretical interest but not very well-defined practical interest is *p*-cymene, which is a principal component of "spruce turpentine," the condensate from the digester relief gases. The yield of cymene varies from one-third of a gallon to 1 gallon per ton of pulp. In addition to paracymene, spruce turpentine contains dipentene, borneol, and sesquiturpentines. *p*-Cymene is easily nitrated to nitrocymene and this can be reduced to aminocymene (also known as carvacrylamine), which is used as an antiknock in the U.S.S.R. Cymene may also be converted into carvacrol and thymol, although this latter process is not on a satisfactory basis. It is oxidized to cumic acid and by other steps to dimethyltolylcarbinol; this is unstable and when heated at the boiling point gives ρ-methyl-α-methylstyrene which copolymerizes with styrene and other readily polymerized materials to give resins. The oxidation of this methylstyrene results in the production of methyl tolyl ketone which is fragrant and finds some use in soap perfumes.

The production of pure cymene from sulphite turpentine is said to be rather difficult and expensive, and it has been suggested that synthetic cymene can be produced at approximately the same price as cymene from sulphite turpentine. Cymene can also result from the dehydrogenation of monocyclic terpenes.

A recent article by J. G. Lewis *(21)* describes the recovery of crude *p*-cymene as carried out at the Fernandina, Florida plant of Rayonier, Inc. The author reports the recovery of only 1 gallon of sulphite turpentine from 10 tons of pine pulp, in contrast to the much higher recoveries from spruce.

This completes the review of what appear to be the most promising of the byproducts of sulphite pulping. There is still a vast amount of fundamental research necessary before the complete conversion of the 55% of the wood currently being lost is possible. There is already available in the literature information on a large number of applications. Many of these are unsatisfactory technically; others are, at the present time, too expensive; others run into competition from more satisfactory products. Nevertheless, as time goes on, these products from the sulphite mills will be used to a greater and greater degree. There are undoubtedly, even today, markets for crude sulphite liquor in a partially evaporated or dried form awaiting the eye of the industrious salesman; also undoubtedly, many applications of sulphite liquor or its components await the imagination of the research chemist. What is really needed is to learn more about the nature of lignin itself; of specific interest would be the discovery of suitable commercial processes for demethylating lignin without subsequent condensation of the liberated phenolic groups. The satisfactory achievement of this aim might lead to a wider field of application of lignin both in tanning and in resin manufacture. Also there is a need to know more about the structure of lignin so as to convert it in higher yield into desirable oxidation products of the type of vanillin and vanillic acid, catechol, guaiacol, and protocatechuic acid, and their corresponding syringyl-type derivatives, and desirable hydrogenation products of the type of cyclohexyl derivatives of aliphatic alcohols and hydrocarbons. Products such as these would find many new uses if available in volume and at prices somewhat below the price of flavoring vanillin.

The author would like to close by paying tribute to the achievements of the pioneers in the field of sulphite liquor utilization and to urge continuing interest and increased effort to the end that the sulphite industry will at some time classify pulp as one of the many co-products resulting from their processing of wood.

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Maine-New Hampshire TAPPI Meets

The Maine-New Hampshire Section of the Technical Assn., of the Pulp & Paper Industry held its annual meeting at the Belgrade Hotel, Belgrade Lakes, Me., on June 25-26, 1948. E. L. Lamb of the Oxford Paper Co., Rumford, Me., presided as chairman. About 150 attended.

The following were elected as officers for the coming year: Chairman—John L. Parsons, Hollingsworth & Whitney Co., Waterville, Me.; Vice Chairman—George Day, Brown Co., Berlin, N. H.; Secretary-Treasurer—Harold E. Pratt, Pejepscot Paper Co., Brunswick, Me.

Executive Committee: Joseph J. Thomas, S. D. Warren Company, Cumberland Mills, Me.; Jack F. Wright, National Aniline Division, Boston, Mass.; A. P. Gregory, St. Regis Paper Co., Buckport, Me.; J. G. L. Caulfield, Eastern Corp., Bangor, Me.; R. S. French, Keyes Fibre Co., Waterville, Me.; C. I. Horton, R. T. Vanderbilt Co., South Norwalk, Conn.; L. C. Jenness, University of Maine, Orono, Me.

The entire technical program was devoted to the very important problems of microbiology. The papers presented were as follows:

"Some General Considerations in Microbiology," by Matthew E. Highlands, Agricultural Experiment Station, University of Maine, Orono, Me.

"Balanced Slime Control," by F. A. Soderberg, General Dyestuff Corporation, New York, N. Y.

Evaluation of Slime Control in Paper Mills," by J. W. Appling, Buckmann Laboratories, Memphis, Tenn.

"Microbiological Methods of Slime Control Treatment," by J. F. McCoy, National Aluminate Corporation, Chicago, Ill.

"Microbiological Control," by R. B. Martin, Wallace & Tierna, Newark, N. J.

On Saturday, June 26, J. A. Sanborn, Professor of Microbiology at Syracuse University, led a discussion on microbiology.

On Saturday afternoon there was a golf tournament and fishing derby.

The following members of the Section attended: F. B. Akerson, J. W. Appling, A. E. Bachman, E. T. Bertram, E. M. Battey, H. E. Berg, I. H. Brandon, J. G Bullard, M H. Busfield, W. F. Butcher, C. L. Caulfield, V. R. Chupas, N. S. Chamberlin, E. T. A. Coughlin, L. W. Crouse, E. A. Dore, Henry Dougherty, Jr., A. G. Dreis, R. W. Estabrook, E. J. Ferrell, R. S. French, D. J. Frese, R. A. Greene, F. C. Goodwill, A. P. Gregory, A. G. Gillespie, E. E. Daggy, G. A. Day, J. J. DeJongh, J. L. Dean, P. A. Donaghy, S. A. Hanks, H. W. Hall, J. W. D. Hierling, M. E. Highlands, J. A. Holmes, C. I. Horton, L. C. Jenness, A. E. Jones, R. E. Kilty, R. O. Lindsey, John Lewis and W. O. Lawrence;

Also, A. J. Lawler, E. L. Lamb, R. G. Macdonald, R. I. Moran, R. B. Martin, Hubert Miller, H. L. Mellen, J. C. Mooney, L. A. Mitchell, H. H. Morton, K. L. Moses, J. F. McCoy, R. F. McNett, D. A. Newman, J. J. O'Brien, J. J. O'Reilly, F. W. O'Rourke, J. L. Parsons, Roderick O'Donoghue, H. E. Pratt, D. F. Pollard, A. E. Poirier, F. F. Pimentel, N. R. Phillips, Al Phillips, P. K. Schilling, C. P. Slocum, P. . Shirley, Jr., R. L. Scoville, E. E. Sawyer, J. R. Sanborn, Orville Sadler, W. B. Rogers, C. H. Rogers, F. S. Stovink, W. D. Stroud, R. M. Stinchfield, H. R. Stevens, Earl Stafford, F. N. Sprague, F. A. Soderberg, J. H. Snyder, Andrew Smith, W. V. Torrey, L. C. Towne, W. L. Tilley, J. J. Thomas, J. K. Van Brunt, Bud Waldron, W. E. Wentworth, J. F. Wright, W. H. Woodbury, F. A. Whitman, J. H. White, H. P. Waldenmyer.

Encyclopedia of Chemical Reaction

The Reinhold Publishing Company has just issued Volume II of its series of books entitled the "Encyclopedia of Chemical Reactions" compiled and edited by C. A. Jacobson of West Virginia University. (927 pp. 6x9).

Volume II covers cadmium, calcium, carbon, cerium, cesium, chlorine, and chromium. It contains 3300 chemical reactions involving these elements. It combines the convenience of an index with a considerable portion of the informational content of abstract and reference works.

It is alphabetically arranged, first as to formulas of the reactants and next as to reagents and contains explanatory paragraphs describing the conditions governing each reaction and the nature of the products formed.

For those engaged in analytical or chemical research it is a great contribution to the saving of time and reference work.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $12.00 per copy.

Pressure Vessels

McGraw-Hill Book Co. has recently issued "Pressure Vessels for Industry," by Harry M. Spring, Jr. of Canton, Mass., a commissioned boiler inspector. (259 pp. 8¼×5¾).

It is a companion book to the "Boiler Operator's Guide" and is intended to aid the engineer or master mechanic to tie in parallel problems in boilers and pressure vessels. It is also written to be of practical interest to those concerned with production, repairs, design, and administration.

Among subjects covered are compressed-air systems; pressure vessels for steam and hot-water services, pulp and paper mills, rubber, textile, and chemical industries; pressure and stress calculations, construction and fabrication practices, appliances for pressure vessels, and defects—their hazard, prevention, and repair.

A description is given of the various pulp and papermaking processes with details concerning digesters, driers, evaporators, etc.

Copies may be obtained from the Book Department of the Technical Assn. of the Pulp & Paper Industry, 122 East Forty-Second street, New York 17, N. Y. at $3.50 per copy.

National Electrical Code

McGraw-Hill Book Co. has recently published the sixth edition of the National Electrical Code Handbook by Authur L. Abbott. (633 pp. 7⅜×5). It is based on the 1947 standard of the National Board of Fire Underwriters for Electric Wiring and Apparatus.

The code covers definitions, approved types of wiring with voltage limitations, requirements pertaining to standard materials and apparatus, automatic overload protection, data relating to motor installations, and special requirements for outside work, hazardous locations, high voltage installations, etc.

All requirements of the code included in the handbook are grouped according to the subjects to which they apply. As a handbook it is prepared for quick reference to nearly every type of wiring application.

Copies may be obtained from the Book Department of the Technical Assn., of the Pulp & Paper Industry, 122 East Forty-Second street, New York 17, N. Y. at $4 per copy.